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Mr. Planché's History of Costume.

THE production of a cyclopædia of so large a subject as costume, requiring so much research and illustration, may in itself be well regarded as an achievement of unusual spirit on the part of an author who has long passed the threescore and ten of the Psalmist; but Mr. Planché has gone further in giving proof, gratifying on our own account as well as his, that every one's strength at that period of existence is not necessarily about and sorrow, for he has now added to his detailed cyclopædia a history of costume treated more generally, occupying nearly as much space as the dictionary portion itself.*

The great and, at first sight, alarming extent of the subject, appears more capable of reduction within reasonable limits when regarded in the light suggested by the author in his Introduction, where he states that all he really proposes is "to show how few, after all, have been the important alterations in the apparel and arms of mankind during the period of which we possess any reliable information; and that, as history is said to repeat itself, so does fashion, notwithstanding its interminable transformations." In other words, we are to regard this history as an attempt not to give all detailed variations in costume (manifestly impossible in any one book by any one man), but to reduce costume to a few typical and constantly-recurring features, and trace the manner in which these were modified at various times and under various influences. This is, in fact, to make a sort of philosophy of the history of dress, and our own remarks on the work will be mainly directed to endeavouring to follow out this idea, and to trace some exemplifications of a ruling principle of dress, or of the disregard of such principle, under its often incongruous forms and unexpected changes.

Mr. Planché selects, as the commencement of his history, the period of the Roman empire. Some selection of the kind was necessary, as the first origin of costume is lost in pre-historic periods; at least, all the intermediary stages between the fig-leaf and a considerably elaborated form of costume have disappeared. A good deal might have been made out of Homer, in the way of description, certainly, though with no illustrations to back it; and then there are the Egyptian and Etruscan tomb-paintings, and the sculptures of the great Greek era, in which the female figures at least are all clothed, and the tunics of the Panathenaïc horsemen, concerning which we might have been glad to have Mr. Planché's opinion as to the extent to which these costumes are realistic or are sculpturesque conventions. That the Egyptian granite statues are realistic as far as the material would admit we have very little doubt. However, considering the necessity, as observed, of some choice and limitation, we do not know that Mr. Planché could have done better than select the period when the known world was under one sway,—a period of the highest material civilisation (and dress is essentially connected with civilisation), and trace the successive changes in dress down to modern times. This he has done by a systematic division into centuries, taking, as far as possible, an international survey for each century, so as show the influence of contemporary national costumes upon each other, or the influence of one predominating nation, as *arbiter elegantiarum*, over others, and so on. This seems to us the best way that could have been selected of getting some order into a subject so various and so difficult to combine into a whole.

Looking at the philosophy of dress in regard to its general forms, Mr. Planché quotes from Strutt, in his opening chapter, to the effect that the necessary garments of mankind have never been many; "one adjusted to the body, reaching to the knee or mid-leg for the men, and to the ankle for the women; another, ample enough to cover the whole person in inclement weather. These two, with or without some protection for the feet, comprised the whole of the clothing of many millions of human beings in prehistoric times, and under innumerable names, have, with very few additions, descended, however altered in form and material, to the present day." The typical examples of these at the period selected for commencing the history are, of course, the Roman tunic and toga. This is, however, rather too broad a generalisation, as it appears to us (as the author, in fact, subsequently remarks) that the use of coverings adjusted to the legs forms a special and very important element in dress, and one the use or non-use of which constitutes a very significant feature in costume regarded as an indication of social feelings and habits. As a rule, the highest civilisation shapes the dress most closely and intimately to the body, and makes it more a matter of deliberate purpose and of intricate fitting and fastening; the lowest civilisation is content with throwing on a covering anyhow, in the way least troublesome to put on or take off. Mr. Planché remarks, in fact, that in the Republican days of Rome, when austerity and simplicity of personal *appareil* were among the first virtues, the toga, or what in more general terms one may call the blanket, was the only garment. The further additions, first of the tunic, and then in the one sex of the trowsers, are the result chiefly of more sensitiveness as to the decorum of dress; and the last important element imparted, that of underclothing which can be frequently changed, is a sanitary one, and the full and great importance now attached to it is of comparatively modern date. This portion of dress hardly, of course, comes under the head of costume, which includes only that which can be outwardly seen, and which imparts character and dignity, or the reverse, to the wearer. We mention it here only as an instance of one of the influences which have operated in regulating modern dress.* But as far as the visible component parts of dress are concerned, it is remarkable how generally we find running through all periods and nations the sense that the dignity of dress is proportioned to the length and flow of the principal garment, and the extent to which the legs are covered. In regard to female costume, this feeling seems to have existed very early; it is fully developed in the Parthenon sculptures, where all the women are fully robed in the same frieze where men are shown naked or with very scanty clothing. In modern times we find the length of skirt in woman's dress is almost equally proportioned to the degree of dignity she attaches to herself, or which society attaches to her. The peasant in many countries (not generally in our own) has short skirts, the lady has long ones, and the lady's state-dress becomes a train that trails behind her. M. Yriarte has observed how, in Venice, the courtesan was distinguished from the honourable lady in costume by the short skirts of the former; indeed, in our own country, "light-skirts" is a vulgar expression reflecting on the character of a woman. But the sense of an added dignity and decorum connected with a long upper garment is just as marked in the case of the other sex, though of course a little different in its manifestation. The tunics of the soldiers in archaic Greek sculpture are among the most curious instances of the simplicity of an age of innocence; they seem contrived exactly to be too short for what would now be considered the claims of propriety. In almost all civilised periods, after the legs are covered, a short coat and a great display of length of limb are among the usual characteristics of gay youth, the Mercutios of their period. This is brought out well in Mr. Wallis's picture of Antonio and his friends, in the Society of Water-Colours, where the short jackets and tight hose of the young gallants in the foreground, the youth of a time when youthful licence was carried to an exceptional extent, are contrasted with the long and voluminous gowns of the middle-aged and staid merchant and his friends. In our own day a man who wants to keep up a youthful and jaunty appearance keeps to short coats, as belonging to a *degagé* costume; a man of more

* A Cyclopædia of Costume; or, Dictionary of Dress. By James Robinson Planché, Somerset Herald. London: Chatto & Windus. 1879. A review of the first volume will be found in our volume for 1875, pp. 83, 563.

* It is true, there seems to be one species of underclothing suffered to exercise an important effect on the artistic result of the whole costume, since *Punch* has told us that the lady who does not wear chamois leather has only a chance of the attentions of the "second dress maker" in a first-class establishment.

sober habits, or the same man when he wishes to be more ceremonial in his *personnel*, wears a long frock coat. It is not difficult to trace all this back to its origin in certain *a priori* feelings of personal propriety in regard to the covering of certain parts of the body more particularly, which was probably the earliest motive for costume of any kind, as it is now found to be the only one among savages in almost the most uncivilised state, and where climate does not render clothing necessary, and which survives in modern times in the tacit feeling of a greater decorum and reserve attached to a long-skirted coat. We observe, by the way, in connexion with this subject, that the author mentions that the short jackets and tight breeches of the fourteenth century were actually made the object of attack by a contemporary satirist or moralist in France, on the ground of the indelicacy of the costume.

Artistically speaking, there may be said to be two main principles of dress, that which conceals the forms and makes the dress the object, and that which is designed to express and set off the form. The toga style of classic dress belongs to the former description, the latter is nowhere fully carried out in ordinary modern costume except in boy's dress sometimes, and in special costumes for particular objects connected with athletics or theatrical performances, and in some forms of military uniform. In the first case the object is that the dress should hang gracefully and in fine lines and folds, and the body becomes, in fact, a mere frame on which to hang it, unless when in walking the movement of the limbs may be partly rendered by that of the dress. In the second case the object should be that the dress should be designed with a proper regard to, and understanding of, the real points of the human figure, and should emphasise and illustrate these, and not contradict them. To do the latter has been the defect of probably by far the greater majority of the costumes of this type which have been in use; it is notably the case (as we think has been observed before in our columns) with the European gentleman's dress at present,—a dress which ignores the existence of either elbow or knee-joints, or of the difference of design and modelling in both leg and arm above and below those joints. Distinguishing in regard to sex, it may be said the woman's costume almost always belongs most to the first-named class, the object of which is to conceal the figure; while men's costume displays it more or less. This distinction is based upon, while it has perhaps assisted a little to emphasise, the natural and inherent distinction between the character and social disposition of the sexes; the one distinguished by reserve and retirement, and not expected to indulge in any great activity of body; the other in daily habits of active movement or athletic exercise, in which the flowing robe or skirt would be greatly in the way, as it would have been in the days of the Greeks had not their customs permitted the man to discard his garments altogether, with little ceremony, when necessary. As it is, women have (wisely) taken more to bodily exercise lately in ways in which sometimes their dress must be inconvenient enough: our friend *Punch*, who is generally good on dress, furnishes us again with an illustration in his suggestion that the gentlemen should be handicapped (*i.e.*, should wear skirts like the ladies) to make the chances at lawn tennis equal.

We may notice some of the points in the history of costume which are brought before us in turning over consecutively Mr. Planché's interesting pages. The principal forms of Roman dress are familiar to every one. Among the nations whom they conquered, and who were doubtless more or less influenced in costume by the habits and tastes of their conquerors, the Gauls present the curious combination, as it seems to eyes used to classic statues, of a flowing robe something like the toga, with trowsers reaching to the instep and tied there; for the Gauls, though barbarians in comparison with the Romans, were sufficiently advanced in the civilisation of costume to have arrived at trowsers very like the modern article. Apropos of this subject, Mr. Planché gives a page of engravings of specimen figures from "the trowsered nations," including Trojan, Parthian, Phrygian, Sarmatian, and Dacian. The Phrygian is a peculiarly characteristic figure, apparently a male figure, but with long hair, and long tunic reaching to the knees, and sleeves and trowsers with a powdered ornament; the whole effect is very effeminate, and except that the trowsers are much tighter, reminds one a little of Turkish female costume. The materials for the treatment of the subject, during the centuries intervening between the fall of Rome and the rise of Mediæval civilisation are, we may well presume, scanty enough. In the course of the remarks on this part of the history, we meet with an example of the danger of trusting to accepted ideas and illustrations in such matters, in a remark quoted from M. Quicherat by the author, to the effect that we are so accustomed to see Charlemagne represented in imperial robes that probably a representation of him would not be recognised which did not represent him thus; and yet it is historically true that he never wore them in his life. His probable actual costume is represented in an illustration from a mosaic in the Church of St. John Lateran: it is rather that of a soldier than of an emperor.

Our Anglo-Saxon progenitors were simple enough in their dress, and, as in so many other matters of more modern interest, the importation of a more affected and ostentatious taste was due to France. The Danes had previously produced some effect upon the wives and daughters of the Saxon nobility by the gaiety of their attire and a degree of attention to the toilet which was probably new to the ideas of the Saxon ladies, but a marked testimony is borne to the foppery of the Norman conquerors, who were remarkable for their love of finery, personal decoration, and constant changes of fashion. The figures illustrative of the costumes of Anglo-Norman ladies indicate a great richness of effect; they are heavily, almost ponderously draped, with broad and rich ornamental borders, which meander over the heavy folds of the dresses. Their costume retains a great deal of classic effect in its general lines, and is dignified and entirely free from the ugliness and oddity of fancy and caprice which have so often unfortunately distinguished the female dress in this country. One or two of the illustrations of the dress of the Norman noblemen indicate (though we cannot fully realise it in the absence of colour) a still greater richness and costliness of costume, of a very effeminate description, the dress consisting of long and flowing robes by no means *propria que maribus* in our ideas; and the figure represented (p. 50) from Willemin's *Monuments inédits* has something in its style and outline reminding us of some of the Etruscan figures in the tombs at Cervetri and elsewhere. The fashion of wearing the hair long accompanied this taste for rich robes, and was the object of legal enactments to restrain it, which were probably as futile as such enactments almost always have been. The Venetian costume of the twelfth century is also rich in its tendencies; but again we notice that the female costume, like that of the Norman ladies, is remarkably rich, dignified, and tasteful; indeed, the twelfth century seems to have been a very admirable era in regard to ladies' dress; hardly anything could be more suitable for ladies of high rank and dignified manners than these large full draperies, entirely devoid of trickery or attempts to tamper with the figure, or artificially alter or distort it. The dress of the Venetian men of the same period is again somewhat too effeminate, in fact little distinguished from that of the lady, except in a somewhat shorter skirt, coming down, however, nearly to the ankles. It is curious, when we come to think of it, that the Templar knights should have adopted the long robe so well known in representations of their order, covering their armour from neck to heel, and which one would have supposed to be little suitable for active service. Mr. Planché mentions a suggestion in regard to a practical origin of this unmilitary-looking gown, viz., that it was to veil the iron armour from the heat of the Palestine sun, which would have effectually baked a knight in his shell, we may readily imagine: the idea seems a not improbable explanation.

Unfortunately the dignity and common sense of costume did not last the European lady for long, and in the thirteenth century we find evidence of the encroachment of those unnatural vanities of feminine costume which have reappeared over and over again in one or another form. In this century we find, says Mr. Planché, constant allusions to lacing and to the compression of the waists of ladies, "whose unfortunate ambition it was then, as now, to appear more like wasps than women, to the serious injury of their health and the disfigurement of their persons." This was in France: as far as we can gather from Mr. Planché's illustrations, the Italian ladies did not fall into this condemnation, and, at all events, one of the two of their costumes that are given is even superior in beauty and dignified effect to those of their progenitors in the preceding century, already mentioned.

The middle of the fourteenth century witnessed a great and unexpected change in the general character of every-day dress, for which no cause can be now traced, in the sudden substitution of tight dresses for the full robes which had usually prevailed before this epoch; "the fashions of the time of Philip Augustus, which had resisted the most important alterations in the constitution of the kingdom, the dynasty, and manners, succumbed without any apparent reason in the middle of the reign of Philip of Valois." The defeat of France at Crecy was attributed by one of their writers to the indignation of Heaven over their unseemly tight dresses, but the conquerors almost immediately adopted the same fashion, which became general throughout Europe. The author notes, also, that in this century two fashions, that of particoloured clothing and of streamers from the elbows, were almost universal. In regard to the tight dresses, Mr. Planché is in favour of the theory which ascribes their initiation to Spain, for which he gives some reasons. Yet, such a kaleidoscope is fashion, that in the same century that witnessed the rebukes of moralists against the tight clothing, we find, in the reign of Richard II. an author venting a diatribe against a dress of just the opposite kind,—"The commons were besotted in excess of apparel, some in wide surcoats reaching to their loins, some in a garment reaching to their heels, close before and strutting out at the sides, so that at the back they make men seem like women, and this they call by a ridiculous name, *gowne*," which, Mr. Planché observes, is the first instance of the application of the old Saxon word *gunna* to the tunic since the diffusion of the Norman language. It is curious also to notice the utterance in the fourteenth century of a charge which, as Mr. Planché truly says, is common to all ages, that "the vanity of the common people in their dress was so great that it was impossible to distinguish the rich from the poor." The tendency of dress is, however, to level itself in proportion as civilisation and political freedom advance; the rich man or the nobleman comes to think it a vulgarity to display his riches in his dress; the poor man, better educated than before, becomes desirous to dress as becomingly as his means will allow, when he is out of his working clothes; and thus both ends tend to meet, on the whole, to the benefit of both.

In the dress of the Italian nobles at the end of the fourteenth century long robes seem in full force for the men; the dress of the ladies of Italy appears to have become somewhat simpler and also less picturesque; one illustration given remarkably resembles the modern morning dress of a young lady, at very recent date. The fourteenth century also witnessed the substitution of plate for chain armour,—a change brought about, Mr. Planché tells us, by the excessive weight of the chain armour, which sometimes so incommoded its inmate as to render his strength nearly useless for combat. If we reflect on the comparative amount of metal that must be used in the two kinds of armour, we of course realise how heavy the older fashion must have been; but in appearance the chain armour looks so much more pliant, and conveys so much less idea of weight or of inconvenience to the wearer, that it would perhaps, be a surprise to most people who have not studied the subject, to learn that the plate armour was introduced as a matter of practical convenience in the first instance. The difficulty of constructing it so as to be pliant and easy of accommodation to the movements of the limbs must have been very great, and have required the finest and most careful workmanship, and it is easy to conceive how important a branch of fine craftsmanship the armourers' trade must have become under the circumstances, so that the most successful and fine armourer must have been an even more important person in the community than Poole or Worth in the present day.

The fifteenth century represents the close of what may be called the Mediæval period of dress, and costume seems to follow rather the same kind of movement which the architecture of the decline did, becoming over-elaborate and showy, though there are many offences against good taste in the costume which have no parallel in the architecture. The enormous and

unwieldy development of sleeves and sleeve-hangings are among these; and the enormously high and disproportioned head-dresses of lace, arranged over invisible wire supports. The desire for novelty and peculiarity of effect appears to have been carried to an excess which in many cases seems entirely to ignore and contradict the practical object of the dress,—as in the long pointed shoes, which certainly must have been the greatest obstacles to active pedestrianism that ever were invented. It was a time of extravagances,—very short jackets or very long cloaks; everything must go to extremes in one direction or another; though even in this period there is nothing really so bad or so offensive to all common sense and good taste as some of the fashions of later days, such as the hooped petticoat. "At the close of the fifteenth century," Strutt observes, "the dress of the English was exceedingly fanciful and absurd, insomuch that it was even difficult to distinguish one sex from the other. Our readers will remember that this complaint, nearly in the same words, has been made by contemporary writers from the days of Rufus." The latter part of the complaint has been revived very lately, in reference to the ladies' assumption of round hats and Ulsters; in which, however, there is nothing really unsuitable as an outdoor dress, but for the fact that the male sex had appropriated it first, and one certainly prefers to see the dress of men and women quite distinct in character. One cannot but observe, however, how universally there seem to have been critics in every period who were dissatisfied with the existing style of dress, and thought it worthy of nothing but satire. The moral, perhaps, is that no costume which departs much from simple first principles of practical convenience and utility in dress can escape appearing ludicrous from some point of view. Venice, in this period, as in most others, keeps its pre-eminence as the place of dignified and effective state costume. Nothing could well surpass the high official dresses of the Venetian Republic for sumptuous stateliness and dignity; but they are dresses essentially for pomp and show, not for everyday convenience, and their sumptuous style may be taken as one of the outward indications how far Venice, in name a Republic, was devoid of real and typical republican characteristics, political or social, being in reality a despotism of a caste or clique instead of an individual. Genuine Republicanism has almost invariably been adverse to costliness and fancy in costume.

The sixteenth century did well for the male sex in dress,—badly for the female. The dress of which the well-known figure of Queen Elizabeth furnishes a prominent type is one of the very worst female costumes ever invented, because it is at variance with all that is most beautiful and characteristic in the female figure, and substitutes for the flowing lines and graceful curves of the womanly form straight hard lines and sharp angles, making the whole dress a hideous and unnatural cage within which the fair human inhabitant is hopelessly imprisoned and lost. The dress of the men, on the contrary, though no doubt exaggerated in its points in many instances, is a very successful combination of grace and elegance with manly character: the flat feathered cap worn picturesquely a little on one side of the head is one of the most pleasing forms of head-dress ever invented; the short cloak and puffed sleeves give a broad-shouldered appearance of strength, and the legs, unencumbered by anything save the tightly-fitting hose, appear ready for any exercise requiring activity and agility, and a man with a well-formed leg (the most effective feature in the masculine figure at its best) had the full benefit of his natural advantages, which he so entirely loses in the funnel-shaped modern trowser. The Vandyck dress (as we may call it) of the next century is superior in general effect even to this, the whole *ensemble* is more thoroughly in keeping, whereas in the dress of the Stuart period the upper part of the person was a little too much emphasised in comparison with the legs; at the same time the treatment of the leg in the cavalier dress is not so good; there is a braggadocio air about the whole costume, and it is by no means so truly a gentleman's dress as that of the preceding century. An interesting incident is mentioned in connexion with the costume of this period; that Charles II., whose good sense upon matters of this kind often takes us by surprise, had invented at one time a dress, to which he meant to keep, as in good taste and suitable, in order to discourage extravagance and idle changes of fashion. The court imitated the Royal example, apparently, for about one month, and then what Evelyn called the "Monsieur's vanities" re-established themselves, and we presume the monarch thought it useless to hold out against them. A story was current that the King of France dressed all his lackeys in the same costume to throw ridicule on the English king, but Mr. Planché thinks the fact doubtful, and it seems improbable that the French king should have deliberately insulted his "royal cousin" in a manner so very paltry and ungentlemanly.

Space will not allow us to touch upon the history further, but we may just say one word in regard to a very interesting chapter which is added to the history, upon the varieties of stage costume, which introduces the reader to some curious and now-forgotten eccentricities or absurdities of costume on the English stage. Shakspeare's notion (or that of the stage-manager of the Globe Theatre) of representing the Athenian characters in the "Midsummer Night's Dream" "in Spanish habits" was outdone at a later period of the English stage, when Garrick acted *Macbeth* in a laced coat and knee breeches and silk stockings, to a *Lady Macbeth* whose hooped dress gave her the appearance of a head and body rising out of a small hillock; and *Comus* appeared on the scene in pretty nearly the same dress as the beaux of the day who sat in the boxes opposite to him, only with a girdle of bunches of grapes round his waist to signify his relationships. There is a good deal more that is interesting, curious, and amusing in this theatrical chapter, which is very fully illustrated.

We have to thank the author for a very full, useful, and entertaining book on a subject that is of interest to almost every one, and which is written not only with a rare knowledge of the subject, but with that kind of enthusiasm for it which always recommends a book to the reader, so that we feel as much carried away as the servant in the "Winter's Tale,"—"You would think a smock were a she-angel, he so chaunts to the sleeve-hand, and the work about the square on't."

THE SAFETY OF LONDON BRIDGE.

A DEBT of gratitude is due to the Earl of Carnarvon from all persons who are interested in the architectural beauty of London. All those of us who regard a noble monument as a national heritage, not to be rashly tampered with, will do well to reflect that it is owing to the action of Lord Carnarvon that the doom of this fine bridge has not, as yet, been pronounced by the Legislature.

It would of course be out of place for us to complain of the swift and silent way in which the City authorities have pushed their Bill through the House of Commons, and carried it up to the third reading in the House of Lords. Such complaints would be as idle, and as wide of the mark, as those which were made as to the resistance offered by Lord Carnarvon, at so late a period in the work of legislative destructiveness as the proposal for the third reading. As to that, it can only be said, "Better late than never." But the City fathers, having decided on their course, cannot be blamed for taking the best measures at their disposal for carrying it out. It is a course to which they have long declared their adhesion; and although it appears to us that it is one which contemplates the gain of only a very questionable advantage, at the cost of great disadvantages, and at the risk of still greater, yet we feel that after all that has been said on the subject in these columns and elsewhere, it is idle to make any appeal for reconsideration in the City.

It is, however, matter for very serious remark that not a single member, even of those who may be regarded as representatives of art, of architecture, or of engineering, in the House of Commons, should have anticipated the action of the Earl of Carnarvon. If a Bill were introduced, say by the Metropolitan Board of Works, which should schedule Westminster Abbey as the site for a new pumping-station, the Vandalism might be a shade or two more pronounced; but we see what we may expect from the public watchfulness of private members. But for the protest of the Royal Institute of British Architects, there can hardly be a doubt London Bridge would now be under sentence of death.

That may seem a strong expression, but it is one for which there is full justification. In the first place, the action proposed is of a nature that would entirely ruin the architectural character of the bridge. That, it seems to us, is so far admitted, that it would be waste of time to debate the question now. If any one who possesses vote or interest in the matter has any doubt on this part of the question, we recommend him to go to the expense of taking a trip to Watford, Hertfordshire. There he will see, just before entering the town, the brick bridge constructed by the late Sir Charles Fox, as sub-assistant engineer, under Mr. Buck as resident, and Mr. Robert Stephenson as engineer in chief, for carrying the London and Birmingham Railway over the high road. The bridge was one of simple structure, consisting of brick piers and semi-elliptical arches, with impost, voussoirs, string course, and coping of Bramley Fall stone. But it was a good sample of a style of work that, while plain and unpretending, had an architectural character well suited to the object of the designer. The bridge, moreover, possesses unusual interest from being the first, under the railway system, on which the principle of the skew arch was perfectly wrought out on a great scale.

Necessity has led the London and North-Western Railway Company to widen Watford Bridge. Economy, we suppose, has led them to do so with iron. As to the effect, we only say, "Go and look at it!" and then reconsider the idea of adding iron patchwork to Rennie's noble design.

But defacement is not all; it is not even the worst that is threatened by this ill-advised movement. Of this there is ample evidence. It is that of Sir John Rennie, the architect of the bridge. It is to be found in his autobiography, published in 1875, at pages 172 to 192, especially at page 189. The advice of the engineer as to the site to be chosen for the bridge had been neglected by the City authorities, and the place then actually used for the foundations was one which it was only with the utmost difficulty that the engineering appliances of that day could render at all available. As it was, the margin of stability was so narrow that after the fifth arch was keyed, not only did its crown subside 4 in., but it was found by levelling that the east end of the pier,—that is to say, the down-stream side of the bridge,—"had subsided from 10 in. to 14 in. more than the upper or west end." With this settlement the bridge came to its final bearing,—that is to say, the final bearing of the structure as designed and built by Rennie.

Now we attempt no prediction. We do not pretend to say what will be or what must be. But we think there can be no denial of the assertion that the settlement at which Rennie's bridge stopped is not necessarily that at which a heavier bridge would have stopped or would stop. In a condition of equilibrium so unstable, and for which the section of the bed of the river, as compared with the depth of the points of the piles of the bridge, so fully accounts, he must be a bold man who would venture to say how much additional weight would cause the subsidence to recommence, or how little would set up an action as destructive as that which was arrested, not an hour too soon, in the transept walls of St. Alban's Abbey.

It may be well here to call attention to one of the few disasters which befel one of the most important works of Mr. Robert Stephenson. We refer to the breaking-down of the iron girder bridge at Chester, over the river Dee, when a passenger train was crossing it. Several persons were killed. An inquest was held at Chester, where the greatest excitement pervaded both the Court and the City. Mr. Stephenson, Mr. Bidder, Major-General Sir Charles Pasley, and Mr. Fox (afterwards Sir Charles Fox), were among the scientific witnesses examined. Representatives of the Admiralty and of the Board of Trade officially attended the inquest, and the proceedings on behalf of the railway company were very ably conducted by the late Mr. Timothy Tyrrel.

It resulted from the evidence, beyond any scientific question, that the reason why the bridge broke down under that particular train, after having carried heavier trains in safety was, that an additional coat of 2 in. or 3 in. of gravel had been spread that morning over the ballast of the roadway on the bridge. That comparatively small addition to the weight proved too much for the margin of resistance. We do not enter into the question of the adequacy of the design. The result of the fracture was a change in the formulæ on which all engineers had, up to that time, relied. The point of

interest is, that the bridge being in a state of much less stable equilibrium, when under the stress of a rolling weight, than was indicated by the table on which all the scientific world at that time relied, the addition of so insignificant a burthen (at first sight) as that of a layer of gravel, was the weight that broke the back, not of the camel, but of the bridge.

Now we may say, without fear of contradiction from any impartial man familiar with such matters, whether he be a man of practice or a man of science, that we have, at this moment, far more reason, from the record of actual facts, from knowledge of the change going on in the bottom of the Thames, from knowledge of the way in which the solid clay has been scooped out by the action of the water immediately eastward of the piers of London Bridge, and from knowledge that the London clay, under certain pressure, acts as a semi-fluid, to fear that a given weight would cause the settlement of the piers to recommence, than any engineer had, before the breaking-down of the Dee Bridge, to anticipate that the addition of a few inches of gravel to the ballast on that structure would so strain its resisting-power that it would give way on the passage of the next train. The vibration caused by a train may be more formidable than that caused by a number of carriages, horses, and pedestrians. But the question in each case is rather one of definite weight than of vibration; and in the case of London Bridge a warning has been given which was not afforded to Mr. Stephenson. The foundations have sunk from 10 in. to 14 in. under the actual weight, to which it is now proposed to add a further weight, not provided for by the architect of the bridge, and acting with a leverage upon its structure.

In all cases of testing strength by the imposition of weight, the weight is piled on, little by little, until, often without any warning, fracture occurs. That the foundations of London Bridge would commence to move under a certain additional pressure, is of course undeniable. It is also undeniable that no man can say with any certitude what that additional weight would be. It would be highly objectionable to make the experiment, however gently conducted, even if only by the addition of a ton or two at a time, because, if the movement were set up, there could be no certitude that it would be arrested, even by the removal of the weight.

What, then, can we say of the prudence of weighting the bridge at once with a mass of supplementary ironwork, added for the express purpose of allowing a heavier moving load to come on the arches and piers,—and that a load not contemplated by the engineer of the work? It does not need a man to be an engineer in order to understand that such a procedure is one highly calculated to destroy one of the most useful, as well as one of the architecturally most satisfactory monuments of our country and of the nineteenth century.

We urge those who have the opportunity to bring these considerations under the notice of the Select Committee. We beg the committee to remember that no professional opinion on the matter can be of the weight of that of the engineer of the bridge himself. It is impossible to read the Autobiography of Sir John Rennie without forming a strong opinion as to what he would have said to the present proposal. And if it could be possible for that sound and cautious engineer to rise from his grave, and to say,—"Take care what you are about; I decline any responsibility for the safety of my work if you thus add arbitrary patchwork to its elevation. You will most likely throw it down," even that ought not to have the authority, as a warning not to be trifled with, of the simple record of what actually took place when the weight of the fifth arch first came to its bearing on the piers. If the City wish to pull down the bridge, they had better do so stone by stone, than run the risk of making the whole structure lurch towards the sea.

Japanese Art.—A meeting of persons interested in Japanese art, folk-lore, and literature is to be held in the rooms of the Royal Asiatic Society, Albemarle-street, on this Friday, July 4th, at three p.m. The object is to establish in London a central institution, with the view of bringing into closer communication the admirers and students of Japanese art and literature, to collect, record, and disseminate information relative to Japan, and to encourage residents in Japan and the Japanese to collect such material.

ARCHITECTURE AT THE SALON OF 1879.

THE RESTORATION OF THE ACROPOLIS OF ATHENS AND THE WORK OF THE HISTORIC MONUMENTS COMMISSION.

As with English architects in our own Burlington House Exhibitions, it is with no small degree of justice that the French architects complain of the limited space allotted to their exhibits at the *Salon*, where each year such large concessions are made to the ever-increasing number of paintings. Interesting and valuable as are the careful works contributed yearly among the numerous private efforts by the conscientious students of the School of Rome, the School of Athens, and the Historic Monuments Commission, the attention of the Administration in vain is called each year to the injustice of the treatment of the architectural drawings.

At a time when in these columns the more attractive contents of the Palais de l'Industrie have been examined at some length, and when we were about to consider the interesting architectural drawings in the deserted corner to which they have been relegated, a valuable article has appeared in a recent issue of the *Revue des Deux Mondes*, due to the able pen of a well-known member of the French Institute, M. Eugène Guillaume.

Regarding his consideration of the work of the pupils of the schools at Rome and Paris, and the labours of the Historic Monuments Commission, the article of M. Guillaume deserves particular attention from more than one point of view, especially at a time when the vexed question of the restoration of our monuments of the past has roused so much discussion in England.

It is an honest but somewhat startling admission made almost in the opening sentence of this article, that, perhaps, for the first time in reviewing the *Salon*, the architectural drawings have been considered worthy of special notice, notwithstanding the seniority of architecture over its sister arts, and the important position it has always held in France. At no period, if we are to believe M. Guillaume, have architectural studies embraced so wide a field, while it is impossible not to admit that the writer is justified in claiming for France that in no other country are these studies so well organised. It is not alone the effect of a traditional obligation, but the knowledge of its value as a factor in general progress, the development which the French Government gives to architectural study.

First comes the École des Beaux Arts in its architectural section, which, classical as is its instruction, still remains the parent establishment where every architect, with few exceptions, commences his career. And then the École de Rome, which, especially within the last century, has turned its active attention to the investigation of the monuments of antiquity. In addition to which should be mentioned the important service of the Civil Monuments (*Bâtiments civils*), the Historic Monuments, and the Diocesan Edifices, the services of the Works of the City of Paris. When these important institutions have been mentioned, and due consideration is given to the encouragement afforded to architectural study by the free instruction of the Special School of Architecture (*École spéciale*), and the numerous societies and private institutions, with their respective publications, it will be seen how large an interest is taken in the desire to advance the study of architecture in France.

If architecture is an art it is also a science and an industry; if it has its theories it has also its history and *technique*, and all these elements are closely connected with each other, a fact from which it has arisen that special judges should alone be called upon to consider its work. But in an art so communicative, and the development of which is so considerable, there are transformations and results arrived at, the meaning of which it is within the power of all to understand, and which are, so to speak, public property.

But, as such, the public seem but little disposed to avail themselves of their rights, the architectural drawings are neglected, a fact in no small measure due to the want of consideration given to their position and their hanging; though among these drawings there are exhibited not a few of the most interesting nature, not alone as technical studies, but as sketches from nature.

Architectural drawing, such as it at present exists, is of recent introduction. Increased in effect as it is by a skilful use of water-colour, which realises a judicious compromise between geometrical conventionality and picturesque truth, this method of architectural draughtsmanship in France may be considered as a product of the close of the last century. Till that date a precise outline had been considered sufficient, lightly shaded with Indian ink or bistre. In the present day, French architectural drawings, in their smallest details, are coloured with an exactitude that in reality can alone be justified in the representation of polychromatic decoration.

Among the works exhibited at the *Salon* by architects, the first to claim serious attention are the restorations of historic monuments, the importance of which cannot be too highly considered, as also the often original talent displayed. To take an edifice in ruins, to measure it, and depict it in its least details, excavate its foundations in search of portions buried by time, consult history and local tradition, and from these data to restore a building, is a work in the accomplishment of which takes part the spirit of research and criticism, of knowledge and imagination. It is a work which for the architect brings into play all his faculties, calls up all his power; and, thanks to the progress in the present day of our knowledge of the past, certainty is rapidly replacing doubt and hesitation. Never, says M. Guillaume, has the theory of architecture been grasped with more breadth; never have the periods which the art of the builder has traversed, never have the forms which that art has created, been more thoroughly mastered. While the great artists of the Renaissance confined themselves to the study of classic models, turning their attention rather to the proportion of the orders than the plans of the Greek and Roman building, in the present day the question of the transformation of styles is earnestly studied; the plans, the distribution and decorations of the monuments of the past are more particularly considered.

In France the French Academy at Rome must be regarded as the home of these studies. From the very rise of that famous institution, Colbert had made it obligatory that the students should produce careful drawings and investigations of the most famous monuments of Rome, and this idea, at first neglected, was revived by the Royal Academy of Architecture, particularly between the years 1778 and 1790. At present, each year, the architectural student who is about to leave the Villa Medici sends home the restoration of some antique monument. These drawings become the property of the government, which has already commenced their publication. The subject may be taken from, Italy, from Sicily or from Greece. Within the last few years, these drawings have been exhibited at the *Salon*, and it is to this fact we owe the Restoration of the Acropolis of Athens, by M. Lambert.

The Acropolis of Athens has often been the object of important studies, and since David Leroy, to whom France owes the first work on Greek architecture, many savants and many artists have in their investigations of those historic ruins gained an honourable name. Now that the plateau of the hill is cleared of its *débris*, the moment has seemed a favourable one for further researches; for Greek genius, as M. Guillaume not unaptly remarks, is so rich, and what it embraces is so profound, that the limit of an acquaintance with it seems almost unattainable. And now M. Lambert has brought his contingent of hypotheses and discoveries. His task has been to reconstitute the monuments of the Acropolis such as they existed at the time of Pericles, and he appears to have consulted with care both the spot and the texts. He has, it is true, added but little to the investigations of Penrose on the convexity of the horizontal lines which form a principle in Attic architecture, nor to the observations of M. Choisy on the occasional want of symmetry to be remarked in the lines of detail, or the plan of those buildings he studied. It is rather to the effect of the whole that M. Lambert has paid attention, and the most striking feature of his restoration is the entire suppression of the staircase of the Propylæa and the determination, for the first time, of the site of the house of the Erephorean priestesses. To reject the staircase of the Propylæa, to put aside the discovery of Beulé, as also what has been till now so universally admitted, the existence of the steps, which, from the platform where the road of the Acropolis ended, gave immediate access to the gates of the citadel, is a bold step, but

one not indefensible; it is difficult, however, to resign the beautiful staircase which M. Desbuisson and M. Boitte restored. M. Lambert's reasons are those that M. Bournouf gave in his work on the Acropolis, published in 1877.

Let us leave M. Lambert, therefore, to penetrate to the Acropolis by the natural roadway he has restored, and passing on the way the edifices such as they existed, restoring the temples of Minerva Brauronia and Minerva Ergané, the Parthenon and the Erechtheum, the elements of which in his plan he analyses and arranges. It is in the neighbourhood of the Erechtheum that M. Lambert has placed the house of the Errephors. He appears to have found in the excavations remains of the foundations; between a wall which touches the house of the priestesses, and the fortification, can be traced a little courtyard, out of which runs a staircase now closed, and leading directly to the foot of the rock on that side of the city. This staircase appears to be that known as the staircase of Aglaurion. These dispositions correspond, according to Pausanias, with the functions of the priestesses, and the restoration of M. Lambert may possibly be a discovery.

The importance attached by M. Guillaume to M. Lambert's work is justified by the interest of the subject; for what person is there whose attention is not attracted by the mere mention of the Acropolis? M. Lambert, in his conscientious researches shown by these valuable and careful architectural drawings, restoring a monument so famous, merits gratitude.

M. Loviot, who is also a *pensionnaire* of the French Academy, has sent to the *Salon* a restoration, that of the familiar monument of Lysicrates at Athens; the work is, however, only a preparatory study of a well-known model, but as such it possesses no small degree of interest, offering as it does an almost unique example of the forms which the Greeks had given to the Corinthian order when they created it. Particularly noticeable is the detail of a capital, with its perfect sculpture, and its lightness, justifying the opinion of those who trace the origin of the Corinthian order to works of wrought metal. In their masterly rendering of the beautiful originals, the drawings of M. Loviot meet all the requirements of the student and the archæologist, and in the charm of their colour would well stand comparison with much of the work exhibited elsewhere in the *Salon*, and whose chief aim has been to fill the eye.

Taken as a whole, the exhibits sent from Rome have produced no little influence on the progress of French architecture, and it is M. Guillaume's opinion, that the works of restoration that for the last half-century have been carried out with the ancient monuments of France have owed their first inspiration to the restoration of the antique.

Whatever may be the opinion of some, the École de Rome, about 1830, contained some brilliant names. The works of Blouet, Gilbert, Duban, Duc, Vaudoyer, changed not alone the opinion till then held of antique architecture, but of that of the architecture of France; and these opinions were expressed in the famous reports of M. Vitet which provoked the formation of the Commission for the Conservation of Historic Monuments,—not alone to protect, but to restore the remains of ancient architecture in France. The object proposed was to save these relics from ruthless destruction by imperfect restoration; and from 1837 the new organisation was complete, and liberal grants awarded by the Government. We are not bound to admit that its efforts were always successful.

The service of the Historic Monuments Commission continues its work, and the spirit of Vitet and Mérimée continues to inspire their successors. This year the Exhibition contained no less than twenty projects which are to be placed among the archives of the institution. Among these the most prominent is certainly the restoration of the walls of Guérande by M. Paul Bœswillwald. It is not that the fortified walls of Guérande will be entirely restored, like those of Carcassone and Avignon; the municipality desire to see only the historic Porte St. Michel restored; and the drawings which M. Bœswillwand has made are masterly specimens of work.

We have mentioned that there are no fewer than twenty drawings of the *Monuments Historiques*, and it is with regret that we have to pass over with mere mention the works of M. Darcy, in his church of Mezières-sur-Brenne; of M. Danjoy, in his restoration of the church of Quarbec; and the excellent studies of MM. Sauvageot, De Laroque, Dussire, and Lonzier, all showing evidence of research and learning. They belong truly, as M. Guillaume remarks, to an order of labours which is worthy our special esteem; they constitute a portion of the immense monography of the monumental art of France in the Middle Ages.

It is with equal regret that limited space confines us to a but hasty review of M. Chipiez's remarkable and strangely attractive restoration of the storied towers of Assyria, of which the author presents four different types. For the first, the ruins of Kharsabad and Konyoundjick are laid under contribution, and the text of Herodotus, as also that of Diodorus Siculus, each of the seven stories of this tower being of a different colour. A bas-relief from the British Museum has furnished the elements for the second type of tower, with its double winding staircase. According to M. Chipiez, these two examples represent the Assyrian style properly so called. Lord Loftus and Mr. Taylor have brought forward the data in the very ancient ruins of Wartha and of Hour, the city of Abraham. The fourth type is purely Babylonian, as the last vestiges of the so-called Tower of Babel served as the basis of its restoration. The strangely unfamiliar shape of these towers is certainly imposing, and the covering of coloured bricks is no less effective. The drawings of M. Chipiez are excellent specimens of execution, and merit a place in an architectural museum, which M. Guillaume regrets has not yet been formed.

It is an equally practical suggestion that of M. Guillaume, that to each of these drawings should, for the future, be added a notice explaining their nature.* For the proper understanding of their object, to explain those questions which always present themselves in matters of restoration, such documents are indispensable. As it is, M. Lambert's notice on his work is in the library of the École des Beaux Arts; the report of M. Bœswillwand belongs to the bureau of the Historic Monuments Commission; and M. Chipiez has not, as last year, with his interesting study on the lighting of Greek temples, published in the *Revue Archæologique*, a notice on the towers of Assyria.

After the works above enumerated, there is a considerable lapse. The important service of the Diocesan Edifices does not possess its archives like the Historic Monuments Commission, and like the City of Paris; and it is a matter of regret that in this way we are deprived of the results of the excellent work of many conscientious artists whose duties are not alone confined to the restoration and maintenance of the noble buildings confided to their charge.

Among the modern works executed by private means, stands foremost M. Bouwens van der Boyen's able plan for the *Crédit Lyonnais*, built within so short a time upon the Boulevard des Italiens, of which it now forms so conspicuous a feature. Here at the *Salon* we are able to study all the plans and elevations, the skill displayed in which do no little honour to their intelligent architect, particularly the large glazed hall which occupies the centre of the building, reaching as far as the third floor. On the first floor the administration occupy the rooms "decorated in the severe style which is to be observed in England in analogous establishments; green hangings, doors and woodwork in mahogany, and furniture which give to all the rooms a unity and a gravity of aspect which are very remarkable." M. Bouwens van der Boyen has met on all sides with felicitations for the success of his establishment which so exactly, in all its practical and artistic arrangements answers the purposes for which it was intended. It is not the first time that this artist has attracted the attention of the profession; in 1875 he received from the Société Centrale d'Architecture one of its prizes for the design of a private house.

This intervention of the Société Centrale in the general movement of art is an important fact which deserves attention. Its encouragement is not alone afforded to domestic architecture, but to archæology; it awards its medal to the meritorious contractor, to the industrial artist, and to the intelligent workman, and this encouragement shows the active solicitude of the architects in France for all who assist in the elevation and progress of the art they exercise.

In this examination of the architectural drawings at the *Salon* this year, so many of which we have perforce had to pass over in silence, all which the visitor was able to see may be considered as constituting the French school, — a school, as M. Guillaume truly observes, rich in its elements, pedagogic studies, classic studies, historic studies, the application of art to our habitations and to all the exigencies of a civilisation daily progressing, the intervention of the Government, and of collective or private initiative under different forms, each of these manifestations occupies a place in the whole. It has been M. Guillaume's endeavour (and ours in submitting his remarks to English readers) to enumerate the forces of architecture in France; the author promising at a later date to give his impression of the actual character of these works. Was it not necessary, he asks, at first to draw attention to the merit which is hidden beneath the small number of drawings which are exhibited? Was it useless to state how many discoveries and creations may escape the notice of the visitor in the small space in which these drawings are exhibited? Is it not true that a separate room, and special notices inserted in the catalogue, would render the artists a service in explaining their works, and the public in allowing it to understand them? And would not this be so much the more necessary that the architect in calling upon the painter and the sculptor for the decoration of his buildings, should maintain the practice of the art in its highest expression and remain the master of the works?

* Not long since, in an article on the subject of the small space left at the disposition of the architects at Burlington House, the *Builder* proposed that the architects might have a special and detailed catalogue containing professional information.

THE ESTABLISHMENT OF A NATIONAL THEATRE.

THE arrival in London this season of the Comédie Française would almost seem an omen of good portent at a time when the discussion as to the establishment of a National Theatre in England has been again brought before the public. After the example given us by the perfectly-acted *répertoire* of the French theatre, which has been so warmly received, the proposal that we should arrange to possess a company of our own, which might be relied upon as interpreting intelligently our own masterpieces, should not be again allowed to pass unconsidered.

In the Comédie Française, in the mode in which that justly-famed company is organised, in the manner in which its members realise the pieces which they represent, the promoters of the National Theatre have, it is often urged, a model to set before the public of the institution that they are desirous to organise in London; and apart from the patronage of the State, which the French theatre enjoys, there exists but little valid reason why such a similarly organised body of actors and actresses should not be formed in London; indeed, inquiry into the origin, history, and development of the Comédie Française in every way shows the ease with which an English National Theatre might be established.

It is not our intention to enter into details with which the journals have lately made their numerous readers familiar, of the history of the French Theatre, of Louis XIV.'s patronage of Molière, of the reason for the playbills bearing the magic date of 1680, and of the successive changes of residence of the Comédie Française, till their final establishment in their now familiar home in the Rue Richelieu. It is not into a review of the innumerable pieces produced by the *comédiens ordinaires* at various times, *du roi*, *de l'empire*, and *de la nation*, or into a consideration of the long-fought battles of the idealistic and the realistic schools of acting, which ranged the frequenters of the famous Café Procope into two camps, as noisy often as those of which the French Chamber has recently been the scene; it is not into the interesting minor incidents of the Théâtre Français, when Louis Seize court dresses, with hoops and head-dresses, ceased to disfigure Molière's comedies and Corneille's classic tragedies; or when those privileged noblemen, whose position allowed them a chair on the stage, were driven before the curtain; when the pit was at length furnished with seats; or a detailed account of those gorgeous evenings when the Court in all its splendour graced the over-heated and wax-candle belighted theatre with its presence, when two strapping grenadiers kept watch and guard at each end of the foot-

lights, their flint-locked muskets duly loaded and primed; it is not of such incidents in the history of the Comédie Française that we would wish to speak, but rather of the administration of the institution which this summer has gained the applause of our London public. It may not be uninteresting to see by what means, under what regulations, the French theatre has arrived at its present position, and thus merited the well-earned praise it has so long received from all lovers of the drama, who have appreciated the intelligent interpretation of masterpieces familiar by private study.

It was with no small degree of reason that Napoleon I. spoke of the French comedy as the glory of the French nation, the opera merely its vanity; how many happy hours of his once obscure early life in Paris had he passed in the enjoyment of the *comédiens ordinaires du roi*, and their interpretation of the masterpieces that then existed in French drama and comedy? The importance and the influence of this institution the Emperor fully understood, when in later years he had it in his power to legislate for the Comédie Française; it is, indeed, in a decree of his, the famous decree of Moscow of 1812, that we find the existing organisation of the French theatre definitely laid down. This, and two later decrees (April 27, 1850, and November 19, 1859), form at present the whole of the legislative documents which regulate the Comédie Française. With these to quote from, it is needless to refer to the fast receding days of the Grand Monarque, or the royal ordonnance of October 22nd, 1680, which instituted the Comédie. In the decree of 1812 all the previous regulations, ordonnances, and reports successively signed with the flowing signatures of the *surintendants des menus plaisirs* of Louis XIV., Louis XV., and Louis XVI., are resumed and brought together.

It is our hope that, by this slight analysis of he organisation of the French comedy, it may be shown how far from difficult it would be to organise a somewhat similar institution in England. A very little inquiry suffices to show how really unimportant an influence in the success of the undertaking is the Government patronage which, in France, is exercised so widely. It is true that the French theatre is subventioned,—or, as we should say, supported,—by the State yearly to the amount of 240,000 francs (some 9,600*l.*); but with that active private patronage which distinguishes in so marked a manner our country from France,—a fact, doubtless, due to their traditional Government interference,—there is little reason to fear a serious obstacle on this score.

From its first establishment the Comédie Française may be looked upon as a society which, while serving as an amusement to the court, was organised in such a manner as to consider its own benefit. With an administration at its head,—under the supervision of the *surintendant*, in the old *régime*, under that of the Minister of the Interior, or, as we should say, of the Home Department, since the beginning of this century,—the Comédie Française is managed by a committee formed of its own members, with its manager,—technically termed the administrator-general,—as chairman, to whose united consideration the affairs of the institution are submitted previously to being presented to the Minister.

By article 30 of the Moscow decree this committee is formed of six male *sociétaires*, or members of the society, together with a secretary. Each year the manager nominates these members. Their duty is to prepare the budget of the society for presentation to and acceptance by the general assembly of the *sociétaires*; to inspect each portion of the house; to verify the receipts, &c. The treasurer is nominated by this committee, but no person can hold this position without having previously furnished a guarantee in property to the amount of 60,000 francs (2,400*l.*). At the close of each month the receipts and expenses are examined by the committee. From these receipts are taken, first, the rights of the author, then all the expenses, the salaries, and the sum set aside for the retiring pensions.

The general assembly of all the *sociétaires* is convoked by the committee of administration, at the end of the year, to deliberate on the budget of the coming year, and again at the beginning of the year to examine the results of the past twelve months; the general assembly is convoked also whenever any unusual difficulty arises affecting the society, and, indeed, whenever the manager thinks proper.

To the administrative committee falls the control of everything which concerns the formation of the *répertoire*, or list of stock pieces, the time of *débuts*, the reception of new pieces. The manager, on his part, determines the exact distribution of the parts, and with this object prepares a list of all the pieces to be represented, together with the names of the actors and actresses of the society who are to play the duplicates; he distributes the *rôles* according to his knowledge of the powers of the company; and this is done in such a manner as to avoid as far as possible the chance of misunderstandings. Of the regulations concerning the parts and their duplicates it is needless to speak at length.

The stock of plays upon which they intend to rely is decided upon by the administrative committee, to which for this purpose are added two lady *sociétaires* (conformably to the decree of December 9, 1780). Their *répertoire* is prepared in such manner that each *rôle* has its duplicate to replace an absent performer. To attend to the observance of the *répertoire* are added to the committee two *sociétaires*, known as *semainiers* (they are at present termed *suppléants*), and each *sociétaire*, or member of the society, has to assume this position in turn.

The committee see that all beginners shall be heard by the public in their several parts, at least three or four times a month; they also see that actors or actresses on trial shall be allowed the opportunity of showing their advance, and they shall see that the doubles have also the means of appearing before the public. Every month the committee see that some important piece, or two minor pieces, are revived or produced for the first time. On the Saturday of each week the *sociétaires* assemble, and the piece for the next week is fixed upon; all present are permitted to make their observations or objections; but, once the *répertoire* agreed upon, no change can be permitted without ample reason.

As *débutants* the manager engages any actor or actress whose powers he may judge sufficient; after a lengthened trial, if of decided ability, the actor or actress becomes a *pensionnaire* at a fixed salary during a year, after which he or she is admitted, on approbation of the committee, as *sociétaire*, with all its rights.

The *sociétaires*, it may be observed, divide the profits of the association according to certain fixed rules. When the *pensionnaire* is admitted to the society, he or she is allotted a quarter of a share, after two years' admission an eighth part of a share is added. With regard to the shares, there exist twenty-four; one of these is set aside to prepare for unexpected expenses, but which at the end of the year, if not used, is divided among the society*; half a share is set aside to augment the retiring pension fund: half a share is expended on the scenery, decorations, the reparation of the house, &c.; the remaining twenty-two shares being divided among the *sociétaires*, according to their several rights.

With regard to the retiring-pension, each *sociétaire* on reception signs an engagement to serve the society during twenty years, after which time he may at his pleasure retire on the full pension, some 4,000 francs (160*l.*) paid, half from the funds set aside by the society, half from the subvention of the Government. The artiste who continues to play beyond the term receives for each year an additional pension of 200 francs (8*l.*).

In case of inability to fulfil the twenty years' term, the *sociétaire*, by permission of the manager, may retire, receiving in this case a proportional pension.

The reading of new pieces (previously examined by the reader†) takes place before a committee composed of nine persons chosen from among the elder *sociétaires*; the acceptation or refusal of the piece is regulated by the vote of the majority of the committee, which has it also in its power, while approving a piece, to demand its correction in certain points. The share of the author in the receipts,—a third taken off for expenses,—is regulated as follows:—An eighth for a piece in five or four acts; a twelfth for one in three acts; a sixteenth for one in two acts, though an arrangement may be made between the actors and the authors.

With respect to the reader's duties (there are three readers in all), he is called upon to make to the committee, on each piece he reads, a report, a summary of the piece, either in its praise or condemnation; and here it may be mentioned that every piece presented to the Théâtre Français follows regularly in the order in which it is received. The Comédie seeks authors, without invidious distinction, and is as equally disposed to play the work of the most unknown of authors as that of the most popular. Their only trouble is unfortunately in the difficulty they meet in obtaining such works. At the present moment, of the 300 pieces annually presented to the Comédie, by unknown authors, with a very few exceptions, none are suitable.*

Among the "general dispositions" it will be found laid down that the Comédie cannot dispense giving every night a representation, under penalty of paying 500 francs fine to the poor. All disputes of a serious nature, such as the committee are unable to deal with, are referred to a council, composed of three jurisconsults, two advocates, and the lawyer or notary of the Comédie.

Respecting the pupils for the Comédie Française, the decree of 1812 bears (in article eighty-nine) the express statement that at the Conservatoire shall be kept eighteen pupils,—nine male and nine female,—whose age shall not be less than fifteen; these pupils are to attend all the different classes of declamation, &c. With this object, independently of the professors of the dramatic art, shall be nominated two "rehearsers" of tragedy and comedy,—who, in the interval of the classes, shall teach the pupils. In addition, there is a professor of grammar, history, and mythology, in their application to dramatic art. Every year the pupils are examined by the professor and directors of the Conservatoire, and those whose abilities are proved are afforded the opportunity of making their *début*, may be received as salaried *pensionnaires* during a year, and finally as *sociétaires*.

Such, hastily analysed, are the general regulations by which the Comédie Française is managed, and the means by which it has been enabled to ensure, if not a constant supply of talented interpreters,—such, no artificial means of education can provide,—at least a succession of intelligent and competent actors and actresses, who delight generation after generation with the representation of plays which have in this manner retained their old grace and charm, their reputation and their meaning.

It is by care in the conservative preservation of its organisation, that the Comédie Française enjoys the reputation of being "the first theatre in the world," where are to be seen actors and actresses distinguished for all which art and education can add to capable and gifted human nature.

And we in England, long as we have been accustomed to look to France,—so accustomed that we seem to have in many cases forgotten our own native merits,—possess no National Theatre where we may see intelligently represented, not alone the favourite tragedies and comedies that delighted our forefathers, but those modern works which are to delight our grandchildren, and the traditions of which it is our duty to hand down to them intact. Our public basely allows each stage of the metropolis to be invaded by the expensively costumed and rejected rubbish of the Continent imported from the theatres chiefly frequented by a frivolous, and, in most cases, a provincial public, incapable of appreciating the well-considered and well-interpreted subtleties of the French comedy.

In Paris, at least, one may, on the same evening, choose between the certainty of being pleased at the Comédie Française or the equal certainty of being bored at a boulevard theatre. It is but just that in London the playgoers should enjoy a like privilege, and there exists no solid reason why they should not be satisfied.

Without the need of Government support, a society might with ease be formed and organised on all the principles which regulate the Comédie Française, after a fully-authorised commission had entirely mastered the system by which that institution is regulated. The subvention

* What we in more than one of our Government offices term "the cake."

† At the present moment M. Guillard, the excellent librarian of the Comédie Française, occupies this post, which resembles that attached to every great publishing house.

* The author has his right to free entry as soon as his piece is rehearsed, and preserves this right three years after the first representation, for a work in five or four acts; two years for one of three acts; and one year for one of two; the author of two pieces of five or four acts, or of three of three acts, or four of one act, retains his free entry for life.

of the Government might be replaced by the aid of a certain number either of wealthy friends or by subscription; an administrative committee being formed, in which the dramatic, the literary, the artistic, and the practical element should be well represented; a manager elected as chairman of this committee; a choice made of astors and actresses, as in the French Comédie, at first to enter the society as *pensionnaires*, at a fixed salary, and admitted, after satisfactory trial, as *sociétaires*, with a share in the society; a dramatic school founded; a moderately-sized theatre at first hired, where the *répertoire* which the committee should fix upon should be presented to the public.

Then we should enjoy again, as did our fathers, the untouched mine of English drama, while year by year could be produced new works to place among the stock plays for the future; the funds as they came in would, as in the French theatre, be devoted to the salaries of the actors and *employés*; the library,—an important feature,—the costumes and scenery, two other very important features, the decoration of the house, and so forth.

A few seasons' trial would suffice to show whether the adversaries of the scheme for the establishment of a "national theatre not wholly controlled by the prevailing popular taste," are right or wrong. We could have no better memorial of the visit of the Comédie Française to England in 1879 than a sister-establishment founded on a similar basis.

ARCHITECTURAL MUSEUMS AND THEIR FUTURE.

IT must needs have struck, at times at least, the thoughtful few who look broadly at art, how very much there will and must be for the men and artists of the future to do. It is hardly to be imagined how much. It will not only be for the future to bring into being and existence what is not now even so much as thought of, but it will needs be original in method of doing it, in a new *modus operandi* in art, in another method of artist action, and in a return to the old mode of working out any art object, whatever it may be. This alone, if there were no other difference, would separate sufficiently the present from the future. But there will be more than this: the multitude of objects and remains of the older and past art will be looked at from a wider and more instructive point of view than is at present, perhaps, possible; and efforts, without doubt, will be made to bring examples of these together, for purposes of study, far exceeding any we can in these days hope for, or, perhaps, imagine. Art, without doubt, will be cultivated, and art objects brought into being, for its and their own sakes, and for the influence such objects are capable of exercising over and in the human mind. Nay, might we not go yet further, and affirm with some certainty, that art in the future, including architecture, will be found to be capable of exercising an influence over existence now unthought of, and thus will elicit sympathy from multitudes who now, as things are, hardly look at it?

We are led to these thoughts, and all but hopes, by much which the late eminent architect, Sir G. G. Scott, wrote at times, giving expression to his own thoughts on this subject, and about the perplexities of art and architecture, and of those whose vocation it is to do the work of bringing them into actual and useful existence. It may to many seem a very simple and all but obvious thing to get together, into a rough room, a number of art details, to catalogue them, and then to make more or less use of them, by study, or by the copying of them, either by drawing or by the actual cutting or carving copies of them in material. But not so. It is a subject of no small perplexity and trouble, and leads into inquiries and questionings but little thought of before. It matters but little what the "styles" of art or architecture are of which the examples and details have been fragments, or from what countries or what ages they may have come. The subject is equally new and strange, and perplexing, and really foreign to the present state of things. It seems, nowadays, so natural, and so much a matter of course, to copy literally, and line for line, a Gothic detail or a Gothic moulding from a parish church or a cathedral, that no one dreams for a moment of there being anything particularly new or strange about it, especially when such detail or moulding is to be seen on the cathedral or church wall, or even as drawn on the pages of an illustrated book. But on the walls of a museum,—even a small one,—this feeling of certainty and matter of course is changed in a moment, by a glance, may be, at the opposite wall, whereon some detail from a New World temple or other strange building may happen to hang,—say from Mexico. No one thinks of copying or reproducing this in any way or for any purpose. It is simply looked on as a mere "antiquity," and as a something altogether impossible to make use of or to adapt or fit to any purpose of to-day whatever, so foreign is it, and so utterly has it passed out of use and memory. Take another and more familiar instance, and one which will show how much there may be found that waits for further study, even in comparatively familiar things. On the wall of such museum, however small, there will pretty certainly be found some examples of the marvellous skill of hand and cunning of mind of the antique Greek, say of the golden age of Pericles and of Phidias. No modern architect or draughtsman would be thought to be doing anything strange or out of the way, as we know, by making literal copies of these, be they mouldings, or ornament, or antique-robed figures, and transferring them, as is done daily, into the architecture of a modern building, no matter hardly of what kind or for what purpose. The sole difficulty is to make sufficiently close and accurate copy of them.

But go but a step further, and get but a feeble glimpse at the earlier and more archaic Greek, or, say, Etruscan, and again the hoar antiquity and strangeness, as from another world, of the details, comes before us, and no thought is for a moment entertained of making a copy of or reproducing these for any purpose, in a new structure, whatever it may be intended for. It might be hard to say why this should be so; for the archaic Greek is to the full as impressive and as workable as the more advanced and later. If the Museum collection should happen by happy accident to contain in a glass case an Etruscan vase, with figures and "architecture," it may stand a fair chance of being copied in earthenware, and so made useful and familiar, but no man ever thinks of copying the architecture on it, and forcing it to do duty in the front of a modern house, so dead is it, and so entirely of the past of things mundane! In a museum, three facts come before the student with some force, at times, in spite of himself, and he perhaps comes to wonder how it has come to pass that the special and particular styles, either of art or architecture, have been, as they have, picked out, and brought into daily and household use, and how it is that others have been passed by and neglected. And then, again, knowing where he is, and looking at these foreign and far-off and all-but-forgotten things of the dim past, he looks about for a something of our own,—the simple growth of the country he was born in and lives in.

It may perhaps interest some here to be told that nothing seemed to delight Scott more than the transfer of Ruskin's Venetian Gothic casts from his own possession to the museum. He thought the study of them would throw a fresh light on matters Gothic, especially among the stone-carvers. It is somewhat curious this, inasmuch as in his "Recollections," he says that he never thought the Italian phase of Gothic at all adapted to English use, though the study of it generally is necessary to the perfecting of the revival of English Gothic here. These special copies of Venetian Gothic work, it may be further mentioned, are many of them from the Doge's Palace, and show the method and character of Italian or Venetian Gothic carving in stone, and how the Gothic carvers then and there made use of natural forms, and brought such into active and useful service. But valuable as such details doubtless are, as things to be studied, and drawn from, and copied even in a new and modern building, there is yet more to be found in them than this of the useful and serviceable: it is that of the evidence they in themselves afford of the individuality of the actual stone-cutter and working-man, and his inherent power of work, and of his being, independently of his master, an artist. We but glance at this, though it was in true fact the very soul of the whole idea.

And this brings us at once to our own special style of art and architecture, the Gothic art of England, and that in which Scott was so much interested, and to which he did so much, one way or another. And here, indeed, we come to matters not a little curious and startling, if we but look at them with open and unprejudiced eyes, and on the walls of a museum we are, to a very great extent, able to do this; more so, certainly, than in the very buildings they came from. In the actual buildings they yet serve a purpose; here, in a museum, they wait for it, and it has to be sought after. Sir G. Scott has, in his book of "Recollections," hardly done himself justice. He never cared to travel, even in the Museum, small as it was, through the perplexities and mysteries of the foreign and dead antiquities, through Greece and Rome, still less through yet older and yet stranger antiques; he went straight to his own *English Gothic*, and found all he needed in it. Nay, more even than this: he did not care for "Norman," to use the well-known term. He looked on its fragments as "antiques," not again to be *utilised*. Much might here be said. He even affirmed that we must not have too much of it. A museum of the whole world's architectures, then, Scott did not and would not have founded, or even cared for. His very feeling for Gothic, and a special *phase* of it, was too powerful, and religiously earnest for it.

In Scott's account of his museum experiences he would almost seem to have lost sight of and forgotten much of this, for he could but barely endure the thought of a general or world-wide Museum of Architecture. He thought to confine it to the Middle Age Gothic, and more especially to a special phase of it,—the Middle Gothic, as it has been termed, and thus to centre the mind of the architectural student, and the stone and wood carver, to what he thought the best work. He looked on the Early Gothic as foundational, and, so to speak, as "trial" Gothic; on the Late, or Perpendicular, as debased Gothic, and as containing the elements of decay and extinction; but on the Middle or Decorated Gothic, as the perfected expression of it, and as the point to start from, and as affording the selected forms to go by, and to copy, both as to general form, mouldings, ornament, and details, figure sculpture inclusive. It is, of course, beside the question to inquire as to how far he was right or wrong in this, but it goes far to prove, and to show clearly, what his thoughts and wishes were as to architectural museums, and how far they were as at present embodied. We are here simply stating a few additional facts, and pointing to some of the many difficulties of doing so new a work in an age which, to state the truth fairly, is hardly prepared for it. If any who read should demur to this, let them but note what is done, and now doing, with the "Architecture" in the British Museum.

Many more thoughts crowd on us here, but we must needs suppress them, but would remark the very curious fact of the absence in this book of a life's work,—so long and so active, and so full of experiences,—of all note of the momentous difference there is between the mode of production and "progress," to adopt that expressive word, of Gothic art and architecture as it is told us, even in the Museum collection, in past and instinctively Gothic times, and the present of Gothic "revival," as so called, and of which Scott himself was so distinguished a master and adept. In the present, as all so well know, *precedent* is everything, and the one thing ever needful, and the more accurately and truly copied, the more valuable the resultant work. But was this so in past days, when to copy a thin old detail was a thing unthought of. How, then, did they of that far-off day work? And, then, again, as to the executive workmen, those who with hands somehow or other built all our churches and cathedrals and castles and quaint town-house buildings. Did they, *i.e.*, in past days, ever design anything, as well as execute it? Momentous questions, and hard to answer, and we could well have wished that in this long-life experience, and ever varied study of so many buildings, in so practical a way, they had filled a larger space in this written record of a life's work.

Petersfield.—The charity of Churcher's College is about to be resuscitated. The governors recently held a meeting, at which they accepted the tender of Mr. John Crook, of the York Building Works, Northam, for the erection of the new buildings, and the works will now very soon be commenced. The buildings will stand on an elevated site just outside the town. We understand that eighteen months is the contract time, and that the total cost will be between 11,000*l.* and 12,000*l.* Mr. Crickmay is the architect.

EXCAVATIONS IN OLYMPIA.

DURING the past month the work of excavation which is being carried on at Olympia by the agents and at the expense of the German Government has been pursued with unremitting diligence, and has resulted in making some further valuable additions to the discoveries already announced, including three heads and three torsos in marble, besides some important inscriptions. Much interest is felt in the excavations, undertaken with a view to add to the remains already found of the groups of the pediments belonging to the east of the Temple of Zeus. The head of Kladeos, which was found here in a most excellent state of preservation, is an addition of great importance. It was on the 1st of April that it was discovered among the remains of the late walls at the southern end of the Echo Hall. The neck fits exactly on to the torso found in the first year of the excavations. The face is youthful and beardless. The hair is cut short, and is plastically marked only at the edges. Altogether, the head confirms the view suggested by the posture and form of the body, that that youth who is lying in the right corner of the pediment, leaning on his elbow, and reclining on his stomach, and who is looking up at the meeting of the Olympian heroes represented in the middle of the eastern pediment, must stand for the smaller and, so to speak, more youthful stream; while the broad-flowing Alpheios is personified by an older man, conched in an attitude of dignity. The head, which is looking up with vivacity, but which in expression and form still preserves the characteristics of antiquity, appears, in comparison with the powerful shoulders and the broad-arched breast, rather small. The river-god himself presents to us precisely the type of those Greek youths of the best period of antiquity who used to practise at this place in the most celebrated gymnasium in the world, and train themselves with a view to render their limbs strong and supple. In the rude and simple posture which is given to the figure there is no trace of the dreamy feeling of nature generally visible in the statues of river deities, which are usually placed in an attitude of luxurious ease,—statues which are the works of an age of greater perception and refinement.

Among the numerous recently-discovered fragments of the eastern pediment, we shall only refer to one of the most important. This is the entire left leg of an aged man, seated in a meditative attitude. That such a discovery should have been made in this spot is not a little surprising, since it proves that here, at the eastern end of the Altis, we have found considerable portions of statues belonging to the western pediment. This fact, important as it is in its bearings on the future researches into the *débris* of the western pediment, is to be accounted for by the use to which the colony that was last settled on the eastern side put these remains in the building of their cottages. Before the west front of the temple, on the other hand, we have found limbs and portions of the groups of that pediment freely scattered about, and which had never been employed as building materials, obviously because there was no colony of any extent settled in the neighbourhood. It was in this free state that we found, at the eastern end the larger portion of the massive legs and the right hand of the colossal figure forming the centre of the western pediment. These fragments were found in the ground about 170 mètres distant from the body to which they belonged. It is a very fortunate discovery, for it is only now that we can properly appreciate the astonishing slender figure and the very lofty stature of this colossus. His right hand, which, in the course of putting the statue together again, has, up to the present time not been completely recovered, may afford an important clue towards fully clearing up the real nature and character of this figure. It is the more to be regretted that the fingers of this hand are still wanting, as this defect prevents us as yet from making out the gesture and action of the figure. Several other limbs of figures belonging to the western pediment, as, for instance, the lower part of the leg of one of the old men who are in a recumbent position, a fragment of the body of a centaur who is carrying off a child, &c., have likewise been exhumed from among the ruins of buildings on the eastern side. This is a significant fact which will stimulate us to pursue with energy further researches in this quarter.

Among the remains of metopa we have found a fragment of the helmet of Gergon, and, at the northern end of the Echo portico, a head of Hercules, looking to the right,—an object which is the third of the kind we have found during this spring. The other marble fragments requiring mention on this occasion as being among our most recent discoveries, belong almost all to the Roman period. First, we have, in a very good state of preservation, a head of Faustina the elder, who was the wife of Antoninus Pius. This head, with the neck, fits exactly on to a torso of a woman coming out of the chapel of Herodes Atticus. Next, there is a statue of a female, draped, but without the head. To judge from the spot where this torso was found, it is one of the statues of empresses by Metroon. Finally, we have two torsos of men nude. They were obtained from among the ruins of the walls of a cottage built on the site of the Leonidaion. These torsos seem to have belonged to the class of idealised portrait statues. We must not omit to mention, in addition, a hand, of truly colossal proportions, in Parian marble. From its execution, it seems to have belonged to the best period of Greece. This fragment was obtained from the eastern Byzantine wall. It seems clearly to show that somewhere or other under the soil of Olympia there is hidden another colossal statue in marble, executed in a superior style of workmanship, and for which we must make a search hereafter. Almost in the same spot we found, in a deep stratum of earth, three valuable ancient inscriptions upon bronze, and of considerable length. In the supporting wall belonging to the Byzantine period, and situated to the east, we found a marble pedestal of great length and height. Its purpose was to support the work of art which Mummius, after the defeat of the Achæan league, had reserved from among the plunder for the purpose of dedicating it to Olympian Jove. Judging by its elongated form, this pedestal could not have supported either of the statues of Jupiter mentioned by Pausanias. We have, therefore, here a proof that Mummius, by dedicating additional gifts, endeavoured to wipe out the sad memory of the burning of Corinth. It is remarkable that the dedicatory inscription which is engraved in identical terms on the two sides of the pedestal is, in the one case, written in the alphabet common in the days of Mummius; while, on the other side, it is repeated in characters belonging to a later epoch. The explanation probably is, that perhaps in consequence of some alterations in the laying out of the roads, the statues were eventually placed in a different aspect from what they were originally, and that the inscription was then repeated owing to the older lines being out of sight of an ordinary spectator. Another memorial of the epoch when Greece was under the domination of Rome has been discovered in the south-west angle of the Altis, which has now beencompletely cleared. In the midst of the numerous elongated pedestals which supported equestrian statues, and of which we here find a very fine row, all standing in the original sites, is a square block of limestone, upon which a Macedonian of Thessalonica, who was a friend of the Romans, had erected a statue of Q. Cæcilius Metellus, the conqueror of Macedonia, "in memory," as the inscription informs us, "of his virtue and of the benevolence with which he had not ceased to treat his (the dedicator's) native city, as well as the rest of the Macedonians and the other Greeks." This same part of the ground would appear to conceal several other memorials of Macedonians. Thus we have found there in addition an inscription of a Macedonian artist hitherto unknown and whose name was Herophon. We have further found there the pedestal of a statue mentioned by Pausanias, that, namely, of Alexander the Great's courier or messenger, Philonides, "who travelled over Asia." Two other pedestals of dedicatory statues, with inscriptions, were found at the same spot. One of them bears the name of the Elean, Antigenes, victor in certain chariot races; the other has the name of Lucius Cæcilius Rufus. Next, towards the south of the Philippeion, comes a pedestal, upon which are drawn five representations of Victory (Nike), surrounded by wreaths of laurel. There are further two pedestals of statues, in honour of generals of the Achæan league, namely one of L. Pompeios Krateros, found to the south of the Heraion, and one of Tib. Claudius Pelops, to the east of the Temple of Jupiter. Lastly, an exceedingly interesting fragment of a decree which appears to refer to the celebration of the Olympic games, and in which mention is made of the honours that ought to be shown to the Roman emperors. In the way of bronze articles, besides the daily harvest of small fragments of vases, coins, &c., there are this time only a limited number of objects to be mentioned. First of all, there is a muscular bronze arm of natural size, belonging, probably, to the statue of an Olympic conqueror, erected on the south-east of the Temple of Jupiter; next, we have the back of a cuirass; and, finally, the handle of a vase, formed of the winged figure of a man in a purely Assyrian style. This is the second object of this particular type which has been disinterred from under the soil of Olympia, and which is of such curious interest for the history of art.

DR. SCHLIEMANN AT TROY.

A LETTER has been published in the *German Correspondent* from Dr. Schliemann, giving some particulars of his recent excavations on the site of ancient Troy. In the presence of Professor Virchow and Director Burnouf, who have recently paid a visit to Troy, there were two important discoveries made, consisting of objects of personal ornament. The first lot was found on the eastern side of the excavations, among the ruins of a wall of a Trojan house which had tumbled down. It comprised the following objects, all of gold. First, three discs, in the form of flowers, measuring each 8·25 centimètres in diameter, and being *repoussé* work, similar to No. 251 in the Mycenæ collection; secondly, a very remarkable ornament for the head. It is 45 centimètres in length, and the upper portion is in the form of a basket, and is studded with numerous small rings, which are filled in with a glassy material now of a white colour, but originally in all probability blue. Hanging from this object are ten gold chains, each consisting of 150 links. To each of the links is attached a leaf, so that, in all, there are 1,500 links and an equal number of leaves. At the end of each chain hangs an image or idolon. The whole lower portion of this head-ornament, as well as the ten chains, had, in consequence of the carelessness of a workman, been thrown along with the rubbish on to a barrow, in order to be shot out down the side of the hill; but Virchow's sharp eye discovered it on the barrow and rescued it for the benefit of archæological science. The second lot was found at a depth of 33 ft. in the great wall to the north-west of the gate. Among the articles of this lot there is one of great interest, namely a silver *kella*, which must have been employed in libations or drink-offerings, since it is adorned with an ornament in *repoussé* work in the form of an omphaline shield. It has likewise a long stem, ornamented with the chasing of a tree and terminating in a large ring. With this lot there was further found a number of gold ear-rings, some large, others small; two of the rings had long pendants. There was also found a mass of silver ear-rings melted together, and hundreds of silver rings likewise melted together, and to which a large number of small gold articles had similarly been united by the action of fire. Finally there were ten gold ornaments, with four spirals similar to No. 297 in the Mycenæ collection; likewise a mass of gold, pearls, &c. In another spot, along with several beautiful objects, a silver dagger was discovered, the handle of which terminates in a cow with long horns. Dr. Schliemann states that, in spite of a wide and minute search, vigorously prosecuted since the 1st of March, he has failed to find any further ornaments of any consequence, and he accordingly concludes that he has now exhausted Troy. Among other things, however, which, in addition to the objects above mentioned, have been brought to light in the course of this year's excavations, is a long street or lane, which is only 1·42 mètres in width, and which is paved with large flat stones.

ARCHITECTURAL SCHOOL, ROYAL ACADEMY.

ADMISSIONS, JULY, 1879.

First-class Students.—Percy Green, W. T. Gooch, W. G. B. Lewis, and A. T. Kirby.

Second-class Students.—C. P. Leach, A. E. Holmes, F. Littlewood, W. Bassett Smith, J. John Jones, F. G. Hooper, and C. A. Smith.

Probationers.—C. Marshall, F. W. Richards, W. Bucknall, E. G. Hardy, B. J. Dicksee, J. C. Hamborg, G. Frisch, A. J. Haynes, J. H. Curry, E. A. Woodrow, and J. W. Simpson.

IRISH ARCHITECTURAL REPRESENTATION.

HAVING published a statement a few weeks since respecting architectural representation in Ireland, and the "dead-and-alive" condition of the Irish Institute of Architects, our remarks elicited a reply from Mr. Thomas Drew, an esteemed member of the council of the Irish body. We inserted the communication without comment, awaiting an opportunity that was likely to happen, and which has happened since, enabling us to ascertain the state of matters for ourselves. We have cast about extensively through the city and suburbs of Dublin, and made inquiries among architects and engineers of old standing, some being members of the Irish Institute, and the conclusions we have formed go far, if not thoroughly, to corroborate many of the assertions made as to the unsatisfactory condition of the Irish Institute. The architects of Dublin, excepting even the quota of doubtful members of the profession, are said to amount to three or more times the number set down by Mr. Drew, and many of these are quite willing to associate on a proper basis for organisation. Indeed, the younger members of the profession are more anxious to have a representative body than the elder brethren, and from what we have learned it is not unlikely that in the coming autumn steps will be taken to revive the Architectural Association that existed for some time and performed useful labour in the same lines as the Architectural Association of London. It has been a matter of great regret that the junior body in Dublin and the Belfast Association were not continued, for both certainly commenced well, as their proceedings will show. Had it been at all suspected that the council of the Institute would allow what was considered the parent body to dwindle down as it has done, more energetic efforts would have been made to keep the junior association together, even under modified conditions, or on a basis suited to the local circumstances of the case. To say the social, literary, scientific, and convivial charms of Dublin are such as to render architectural organisation and meetings most difficult or impossible in Dublin, is to say something that will not be generally received. Why should it be more difficult for architects to meet in ordinary session in Dublin, than engineers or members of other professional bodies? London possesses ten times the attractions of Dublin, and so proportionately do several other cities and large towns, yet the architects of those places, senior and junior, can find sufficient time, besides attention to social and convivial calls when so inclined, to do useful labour for the interest of their profession. We visited the rooms and libraries, museums, &c., of a few of the learned bodies in Dublin, and we found evidence of wholesome organisation and valuable scientific and literary work. We will not draw any invidious comparisons, but certainly the head-quarters of the architectural profession in Dublin at present, and for several months past, have not been conspicuous for labour within or for outcome. We speak plainly, and without prejudice, for it is our desire to see a healthy Irish Institute formed, and in working order. We desire to see the affiliation of the professional bodies throughout the kingdom with the central one, an affiliation in spirit and purpose for the general good, each city and town at the same time maintaining its local societies intact. No valid excuse can be advanced why Ireland could not support a strong and active Institute. Outside Dublin, in Cork, Belfast, Derry, Limerick, and other cities and towns, there are a number of respectable architects with a fair and increasing practice. Many of these would doubtless join their brethren in the capital if a good active council and energetic secretary were to be found at head-quarters. There are petty jealousies rife and unkindly feelings existing in Dublin, no doubt, among members of the profession, but in what city and town are there not dissatisfied beings, and where must we go that we shall not hear and see some unpleasant things? In wealth or population of course no comparison can be drawn between London and Dublin; but as regards wealth, Dublin at present is rich and prosperous enough, and building speculation and industry promising enough to make a number of architects feel easy who mind their business and treat their clients well. Indeed, the building industry for many years in Dublin and other cities in Ireland may be written down as one of the staple trades in the country. In Dublin since the decline of several old local manufactures, the building trades have afforded the chief employment of the artizan population. Dublin architects have far more to do than formerly, and of course their numbers have increased. This increase is one reason why they should be associated, for their non-cohesion or separation has led to the cropping-up of evils which might be expected, evils and abuses which are injurious to the profession, and which can never be minimised until a truly representative architectural body exists. The Royal Institute of British Architects can now answer for the professional integrity of its members, though it is possible still for a member to fall, but if he does, he must "fall out" of the ranks of the honoured corps. This standing scrutiny and discipline will be needed in Dublin whenever a real and active living Institute is founded. At present it is asserted that there are some unworthy members of the order,—men calling themselves architects, who accept bye-commissions. A respectable architect, of fair practice in Dublin, offered, some time ago, to give 20*l.* to any one who would come forward and "bell the cat." That the cat was not publicly "belled" was owing to more than one reason, but chiefly to the fact that in no place in Europe is the name of an informer held in such detestation as in Ireland. Architects, too, have always been reluctant to inform, even on an unworthy member of the profession, and let him fall into other person's hands. In the meantime the habitual offender thrives, to the injury of his brethren, and to the disgrace of the profession; and outsiders, never prone to judge leniently, denounce the whole body for the sins of the unworthy few. It is plain, at the same time, though one architect may not inform on another for sins of omission and commission, some sharp means and measures are necessary to bring an offender to book.

It was stated in a building case in the Court of Queen's Bench, Dublin, that the architects in that city accepted bribes. Now, if such an insinuation or charge were made in the London law courts against any of the members of the Royal Institute of British Architects, think of the indignation it would justly provoke, and how soon the false charge would be repelled, and the accuser called upon to substantiate his statement.

When the Council sings dumb, well may the body at large wax indolent and indifferent. We were informed that several respectable builders in Dublin are as anxious to see architecture worthily represented and its interests protected, as are a number of the architects themselves. Some of them, too, would willingly subscribe towards giving a testimonial to the person who would courageously undertake the task, and succeed in bringing to book any architect who was known to be degrading his profession.

The conclusions we have formed may be summarised in a few more words. It appears to us that Dublin at present has not, nor has she had for many months past, a thoroughly representative Institute of Architects. That the Irish capital is well able to support an Irish Institute; and there are no serious impediments in the way for preventing such a body from meeting and holding regular sessions like kindred bodies in the chief cities and towns in Great Britain. That regularly-conducted proceedings, useful work for the benefit of the profession, and a series of well-prepared papers, will always secure fair audiences in Dublin, no matter what may be the other attractions. That architectural practice in Ireland, particularly in Dublin, demands the formation and maintenance of a truly representative and vigorous Institute, for the conservation of the rights and the correction of the abuses appertaining to the profession.

For the above chief reasons, among other minor ones, a working, representative, and influential architectural body is needed in Dublin, and we should be always glad to record the progress of such an organisation. We have been at some trouble to ascertain the present state of things. We hope our bluntly-expressed, but kindly-meant, remarks will be taken in the spirit in which they are written; for we have no private ends to subserve, our standard being the common-weal, and none other.

Sanitary Association of Scotland.—The fifth annual meeting of this Association was held in Dundee on the 25th ult. We will return to it in our next.

PATENTS.

NOTHING could very well show more characteristically the inherent conservatism of the English nation than the fact that the basis of our existing regulations in regard to grants of patents for inventions is based on a statute passed in the year 1623. Moreover, the Statute of Monopolies (21 James I., c. 3), we may remind our readers, was passed, not to regulate the manner in which inventors should be protected and their ingenuity encouraged, both for their own and the public benefit, but to put an end to intolerable abuses in regard to the granting of monopolies, by which the sovereigns of this country were in the habit of obtaining funds, and by which ordinary necessities of life became commodities in the hands of one or two persons to be disposed of for their sole benefit. In this Act, however, a single clause protects the right of the sovereign to grant patents for "new manufactures not contrary to the law nor mischievous to the State," and, as we have said, it is this section which forms the whole foundation of our modern patent law, so that we regulate the various processes brought into being by the keen ingenuity of the men of the nineteenth century by an Act of Parliament passed, not in the interests of modern inventors or the modern inhabitants of this country, but to curtail the overbearing powers of the Stuart dynasty, and to suppress the Sir Giles Mompessons of the Stuart age.

Further than this a great mass of law has grown forth from this single section, which is scattered about in scores of volumes of law reports, and in some half dozen Acts of Parliament, so that it is impossible to conceive anything more absurd than the present position of the English law of patents, so far, at any rate, as its form is concerned. Thus, even a "Patentee's Manual,"* clearly and concisely written, such as that of Messrs. Johnson, of which the fourth edition now lies before us, runs—including statutes—to over 300 pages; and it is no exaggeration to say that any inventor who desires to be properly informed of the general principles and rules which regulate patents in this country, can scarcely dispense with a single page of this volume. And when we mention this book, we would make two suggestions to the authors, which we venture to think would add to the value of any future editions. The first, not perhaps the least, important of these two, is that in the list of cases cited the date of each decision should be added; the other is that marginal notes should be placed by the side of the text. We have had some experience of legal and technical literature, and we are quite certain that if marginal notes add something to the expense of the publication, they yet cause a book to be held in higher estimation, and form a great convenience to the readers, and consequently increase its sale.

We have said,—to leave Messrs. Johnson's book, and to return to the subject of patents,—that an immense mass of law has grown up since the passing of the Act of James I., which is all of it of more or less importance to the patentee. Let us take one point only by way of example in regard merely to what is a public user. Now, in this matter it would seem to be quite possible to have a clear and certain definition; but instead of that we have to consult a number of cases going as far back as 1798 in order correctly to arrive at a conclusion as to what is or is not a public user. In the case of Carpenter *v.* Smith in which Lord Abinger was the presiding judge, he attempted some kind of definition of the term. Thus he said that "the meaning of these words is this, that a man shall not, by his own private invention, which he keeps locked up in his own breast, or in his own desk, and never communicates it, take away the right which another man has to a patent for the same invention," and he goes on to add at some length to this definition. But when we bear in mind that it may be most important, and, indeed, that it becomes more important every day, for an inventor to know what is or is not a public user, it becomes obvious that this person should be able to lay his hand on a simple and clear definition of the phrase, and not find it necessary to ponder over legal decisions, the result of which meditation may not improbably be to make confusion worse confounded. We could add much more to the same effect, but we may say this also that the confusion of our law in regard to patents

* The Patentee's Manual. By James Johnson and J. Henry Johnson. London, 1879. 4th edition.

necessarily makes the patenting of inventions more expensive by necessitating the use of patent agents and lawyers, in order to prevent the possibility of future litigation. For, after all, the grant of letters patent for inventions should be a simple matter; given a clear rule as to the things for which patents will be granted, there should exist no very great difficulty in acting upon such a rule. But as matters stand at present, we find that the tribunals of this country have been for years gradually extending the operation of the sixth section of the Statute of Monopolies so as to protect modern inventors. The Statute spoke of "any manner of new manufactures," that is, something manufactured, but now, as Lord Westbury said in Halsten *v.* Smith, "By the large interpretation given to the word 'manufacture,' it not only comprehends productions, but it also comprehends the means of producing them. Therefore, in addition to things produced, it will comprehend a new machine, or a new combination of machinery; it will comprehend a new process, or an improvement of an old process."

We have no objection to such expansion of a statute passed when the ingenious inventions of modern days were wholly undreamt of. But that is no consolation to the humble inventor who is desirous of knowing for what kind of invention he can obtain protection. Compare this with the comparatively clear state of the French law on the subject, which is thus stated by Messrs. Johnson in their useful compendium of foreign patent law which is to be found as an appendix to this manual (p. 364). "Every new discovery or invention in any branch of industry confers upon its author, under the conditions and for the time hereafter mentioned, the exclusive right of working the same for his own benefit." The following cannot be patented:—Pharmaceutical compounds or medicines of any kind, these being governed by special laws and regulations, schemes and projects of credit and finance." Whether it is advisable to create a vast number of monopolies in a vast number of articles, many of a very trumpery kind, is a matter which would require a longer discussion than we can now give to it. For there are certainly many inventions at the present day which have cost their producers very little thought, and are the mere adaptation, by a little care, of some existing articles in different modes. But, at any rate, there can be no question about one matter,—that is, that if we endeavour to foster ingenuity by a system of monopolies in the form of patents, we should make the obtaining of such patents as cheap and as easy a process as possible. As a matter of fact, however, the obtaining of patents for inventions is more expensive and more difficult in Great Britain than in any other country in the world. That this is so can be very soon shown. In this country, on petition for letters patent 5*l.* has to be paid; on the certificate of record of notice to proceed, another 5*l.*; on the warrant of law officers, another 5*l.*; on the sealing of the letters patent, still another 5*l.*; on the specification, again 5*l.*; before the expiration of the third year, 50*l.*; before the expiration of the seventh, 100*l.*; and, finally, there are various small fees which do not always arise. But we have with the above items reached 175*l.* We turn now to the United States, the country whence innumerable most useful and most trivial inventions have come during the last quarter of a century; here we find that, on the application for a patent, fifteen dollars have to be paid, and on the delivery thirty dollars. Let us see what happens across the Channel. In France there is a payment of 1,500 francs, which may be paid in a lump sum or by yearly instalments for fifteen years,—that is to say, 20*l.* in fifteen years is all that is taken from the inventor. If he finds it a useless patent he ceases the payment, and the payment thereupon lapses. Again, the cost of patents in the German empire is not much more costly than in France, because here we find that a fee of thirty marks (shillings) is to be paid on the issue of a patent, and a further fee at the commencement of every second and subsequent year, amounting, in the first instance, to fifty marks (shillings), and increasing by fifty marks per annum for the time of duration of the patent. And it must be borne in mind that though 100*l.* is a small sum to Sir Henry Bessemer or any other large engineer, yet that it is a perfect fortune to the small workman, and if we would foster the ingenuity of our artisans, it seems obviously good policy to enable them to realise the result of their own ingenuity by their own capital, and not make it necessary for them to appeal to the master or the capitalist for assistance to obtain the fruit of their ingenuity. For if they go to a master for help, the master naturally considers the invention, to a large extent, as his own property. There are a large number of other points in regard to this great question of patents to which we would gladly devote some space, but we have said enough for the present to show, without going into any question of principle, how urgent are the needs for a new patent law. We profess to have the most practical Legislature in the world, and we laugh at the scenes in the French Assembly, and congratulate ourselves that we are not ever employed in scheming for place like our friends the Italian politicians. But we find that, in Italy, one of the earliest of the laws after the incorporation of the new kingdom,—viz., in January, 1864,—was a patent law which, in a short space, made the regulations clear; and that in France these matters are chiefly regulated by a modern law of the 5th of July, 1844. Yet here, in England, we are content to read, at the opening of every session, that the Government hoped to do something in the way of patent reform, but yet, when each session comes to an end, we find that we are exactly where we were before,—that we have our patent laws,—laws meant to deal with the innumerable inventions of this century drawn from a statute of the reign of James I., interpreted by dozens of decisions and scores of judicial dicta, which even the ingenious and laborious lawyer can barely master, much less the artisan or the engineer, whose working-hours are spent in his business, and his leisure time in necessary recreation or in finding out some new and ingenious power of mechanism.

A FLOORCLOTH FACTORY IN FRANCE.

THIS has not been, on any grand scale, a very ancient industry in France, or, indeed, anywhere on the Continent, where floorcloths are less extensively used than in England, and smooth-surfaced table-covers also. Within the last quarter of a century, however, a considerable development has taken place, and one factory in the suburbs of Paris turns forth at times specimens 8 yards in width and 150 ft. in length, which are regarded as signal triumphs of skill. The works were originally placed outside the barriers, to avoid the heavy municipal impost upon oils of every description, as well as upon several other articles entering into the process of production; but in course of time they will be enclosed within the new taxing limits, and the buildings are too spacious and valuable to render their removal, on this account, worth the while of the proprietors. The method employed is, various though the results are, an exceedingly simple one,—the spreading of a paste, more or less coarse or fine, mixed with linseed oil and colours, over tissues varying in texture, from the heaviest and roughest canvas to the softest skin or the lightest gauze, whether for covering staircases or lining the immense saloon floors of ocean-going steamers, and painting them in one or two plain tints, for nurses' aprons, or with the hand, added to enrichments of gilding, for table-covers. It was at first found impossible to obtain in France groundwork of sufficient amplitude for the larger spaces required, and no ingenuity of mechanism could totally conceal the seams where different pieces were joined together, so that for a long time recourse was had to the British manufacturer; but this difficulty was ultimately overcome, though only to a certain extent, by the French makers; for the obstacles are well known to the throwing of a shuttle to a distance even of 20 ft., and they can now produce in a single factory all that they require up to a breadth, at any rate, of four yards, or about half of that which is looked upon as perfection in point of size. These huge strips are hung upon vertical poles, like the scenes which are being prepared for a theatre, the manipulation being in both cases, indeed, almost completely similar,—the supporting posts, the rollers, pulleys, and "bridges" to be seen at work among the penetralia of the Grand Opera have a family likeness to the apparatus of the Messrs. Baudouin, behind the railway station at Sceaux. Between each coil, as it is pasted, dried, and slowly drawn away, to be coiled again round another drum at a distant end of the workshop, is a framework of the same height, divided into stages, serving as scaffoldings for the men, whose first task is to coat the material over with a combination of linseed oil with yellow ochre. This is technically called the ground paste, and the preparation of it is a matter demanding considerable judgment. It is carried on in separate workshops, fitted up with elaborate machinery, where the oil is, to begin with, boiled in caldrons over intensely hot fires, and mixed, the while, with a certain proportion of white lead, or some other chemical agent, though, for particular purposes, the combination is stirred up in iron caldrons, moving on rails, by means of a winch, and withdrawn with the utmost care, when a given degree of heat has been attained, in order that the contents may not be violently shaken,—a precaution essential at once to the completing of the process, and to the safety of the structure, filled with materials of the most combustible character, in which it is carried on. The oil and white lead,—or its substitute, thus blended,—is allowed to cool for a day without being disturbed; it is then replaced over the fire, and the operation is sometimes thrice repeated, when a series of stirrings take place, with little additions of substance, supposed to be secrets, which are to increase the colour-fixing and drying qualities of the paste.

The oils employed come, as a rule, from the North of France, which, for other than fiscal reasons, are preferred to those of the Baltic and other regions abroad. With respect to the colours themselves, they are pounded and mixed by steam engines working a series of rollers, under which, as the powder passes, it is ground, over and over again, turned over, kneaded, as it were, almost to impalpability, and softened by gradual additions of oil. The ochrous paste is then poured into buckets, whence the workman spreads it over the surface to be covered, with an implement somewhat resembling a rake. Long practice enables him to distribute his material to a perfectly even thickness, and to skim all superfluous layers away, as though he were peeling off a skin, from the tightly-stretched canvas. But this is not enough. When the paste is so dry that it could hardly be any drier, he takes a tool, in shape like a razor, but of enormous size, with a scythe-like handle, and, mounting his scaffold, literally shears and shaves off every excrescence, however minute,—a critical kind of work for a man standing on a narrow plank, so high above the ground, with such a weight of steel and wood in his hands. Then, with the largest pumice-stones that can be procured, he continues his polishing labour, until a sufficient smoothness has been obtained, and the floor, or, as the French term it, waxed cloth, is ready to be removed to the painting or printing shops. The patterns are produced in a multiplicity of ways. Sometimes they are engraven on wood, but generally traced on zinc, framed in wood, and planed down to a level with it. The table upon which the colours are arranged is covered with a stuffed cushion, in a case of waxed cloth. Formerly, the cushion floated in a vat of water, the fabricators of that time thinking that this secured a more delicate touch of the various pigments with the little copper "dabs" or plates employed, and that a regular impression was thus secured throughout. But the belief has been abandoned and the elasticity of the cushion or pillow is found, to all intents and purposes, sufficient. The whole of this part of the work is full of difficulty. It is no easy thing, in a workshop 60 ft. high, perhaps, to manage so vast a surface, awkwardly placed as it must be, with several men engaged upon it at once, in producing one pattern, which must be perfect at every point, and join like the design of a mosaic, without even the intersecting lines of mosaic-work being permitted. The impressions from the zinc or wooden planks spreading out from the centre towards the four sides must, at each of them, connect by themselves geometrically with the border, or the result will be pronounced clumsy. Moreover, the great surface keeps continually, though slowly, unrolling from above; but before reaching the ground it is taken hold of between a transverse beam of wood and bar of iron, furnished with an apparatus of chains and blocks, grooves and wheels, along which the huge canvas, now exceedingly stiff and hard of manipulation, is gradually moved, until the last yard has been reeled off, and it hangs high in the air, with all its colours fresh, and ready for drying. This second drying must not be less complete than that of the foundation oil, ochre, and white-lead paste, or else it will peel, crack,

spoil in a warm, or, still more easily, in a damp climate. But, as such vast surfaces would speedily encumber the workshop, they are removed, before long, to galleries supplied with artificial heat. This removal is an affair of difficulty. The colours are still moist; they come off at the lightest touch; they are apt to run together. Consequently, it is impossible to roll up the floorcloth before carrying it away; at the least undue tension the patterns will seam all over, and be ruined. It has, therefore, to be tenderly led, so to speak, over a succession of smooth rollers, turning at a gentle and even speed, through a door of enormous height and breadth, into the receptacle known as the "oven," where once more the methods of warming up the temperature until the extreme drying point is reached have to be carried on under the most cautious supervision. Steam-power has been partially introduced to facilitate these latter processes. The great surfaces thus produced are usually, as already said, intended for the saloons of first-class passenger steamers, or the cabins of ships of war. One manufactured for the late emperor's yacht was 120 ft. long and more than a third as wide, though two joinings, artistically made imperceptible, ran down its length. The margins are usually imitations of marqueterie, or marbles, or ornamental stones of brilliant tints. Many, however, are exported to the colonies, where their coolness renders them preferable to carpets, and where they can be more easily kept free from dust. In France itself, where carpets are rapidly coming into vogue, floorcloth is often laid down round the edges of the room, instead of the beeswax polishing of other days, necessitating an endless variety of length, width, and pattern. The manufacture of these is, of course, comparatively easy work, but it engages a great deal of artistic fancy and feeling. In fact, there are a hundred other varieties of these fabrics, from varnished table-covers down to playing-cards; but the class to which reference has been made is that which has a more substantial and household value, and it is growing into the material of a large and expanding trade. The floorcloth factories of Paris, indeed, though not of old date, are already of the highest reputation.

THE PROGRESS OF OUR COLONIES.

MORE and more the prosperity of England seems to depend upon her colonies, and hence the statistics in relation to our colonial and other possessions should have a deeper interest yearly to us. A large portion of our trade is annually done with our colonial possessions; we are manufacturing more and more for them; and from many we are drawing larger supplies of raw materials. Increasingly, also, we are sending emigrants thither; and as the once wild parts of the colonies are brought into cultivation, it is by means in some degree of British pluck and enterprise, of English instruments, and in some degree also with British money, while of the result of these we are receiving a large portion. Hence it may be fairly said that the fifteenth issue of the Statistical Abstract in relation to the Colonial and other possessions of the United Kingdom is full of intense interest, not only to the dwellers in the colonies and to their relatives at home, but also to the larger number interested in the trades they represent. It is worthy of notice how rapidly the populating of some of the colonies is progressing. Since 1861, Australia as a whole has doubled its population, that increase being most marked in recent years in New Zealand and Queensland. To the Cape of Good Hope, to the Dominion of Canada, and to the West India Islands, as a whole, there is a constant influx of population; but Sierra Leone, St. Christopher, and some other smaller settlements, show a falling off in the numbers of the population.

In the revenue, there have been vast strides in some of the colonies,—Australia has enlarged its 7,766,000*l.* to 17,793,000*l.*; North America has risen from 2,732,000*l.* in sixteen years to 4,784,000*l.*; and the Cape of Good Hope from 757,000*l.* to 2,931,000*l.*; but the Falkland Islands, St. Helena, and a few others show decreases in their small revenues. The public expenditure has naturally risen with the increased revenue,—Australia, to 16,170,000*l.*; North America, to 6,685,000*l.*; and the Cape of Good Hope, to 3,428,000*l.*; but there has been no declension in the expenditure of the Falkland Islands and others having decreased receipts. The public debt is rapidly rising. The last eleven years embraced in the return have added 35,000,000*l.* to the debt of Australia, and a large amount to that of India; whilst in most of our colonies debt is being added in far too rapid a ratio. At the same time, trade, tested by the tonnage of vessels entering and clearing, has very materially increased. That of Australia has doubled in the fifteen years; India has added over 50 per cent. to its industrial operations; North America and the West India islands a lesser proportion; whilst Hong-Kong has increased in a far more rapid ratio, and to Gibraltar and Malta there is a satisfactory increase. We retain the chief portion of this trade in our own hands, moreover; for, out of the 5,634,000 tons vessels entering and leaving Indian waters, 4,550,571, were British, and out of 7,000,000 tons for Australia, 6,394,000 were also British.

As regards imports, India has added in the fifteen years about 5,000,000*l.* sterling to the value of her imports; Australia, 15,000,000*l.*; North America, 7,000,000*l.*; whilst the additions to the trade of Natal, the Cape of Good Hope, and Malta have been amongst the most satisfactory in ratio. Out of 48,000,000*l.*, India imports 37,000,000*l.* from the United Kingdom, and out of 48,000,000*l.* Australia imports 23,000,000*l.* from us; whilst the bulk of the commerce of the West India Islands, and a large portion of that of North America, is with us.

Of most of the large colonies the trade is, in its export branches, increasing rapidly; and, roughly speaking, it may be said that one-half of the exports are to the United Kingdom. A very large increase in the general exportation of wool has taken place of late,—from 148,240,000 lb. to 424,800,000 lb. in the year,—an exportation to which New South Wales and Victoria are the chief contributors. There is also a growth of the sugar exportations, but not so largely,—from 7,000,000 cwt. to 9,000,000 cwt. India seems chiefly to import cotton manufactures, coal and coke, iron, copper, and brass, and malt liquors; and to export raw cotton, grain, jute, rice, seeds, and tea,—the exportation of the last having in fifteen years been multiplied eightfold. Ceylon takes fair quantities of coal and coke, of rice, cotton manufactures, and haberdashery; and sends out cinnamon, coffee, and oil. New South Wales imports beer and ale, tea, wool, spirits, and sugar; and exports copper, coin, tallow, and wool; and other of the Australian colonies have somewhat similar trades. Canada seems to be importing much more raw cotton, less iron, spirits, and woollen manufactures, and to export less coal, certain kinds of timber, and wool, whilst there is a considerable increase in the exports of agricultural products and the produce of animals.

The banking facilities of Australia and Canada seem to be enlarging, and to be more made use of; there is a growth in the mileage of railways in all the places of which there is any account; but much remains to be done in this respect, as will be understood when it is stated that Natal is credited with only five miles of rail, and the Cape of Good Hope with 404. A new table is added, that of the miles of telegraphic wire in use in certain colonies, from which it appears that India has 17,840 miles; Ceylon, 785 miles; New South Wales, 6,073 miles; Victoria, 2,885 miles; South Australia, 4,061 miles; Western Australia, 1,567 miles; Tasmania, 754; New Zealand, 3,307 miles; Queensland, 5,033 miles; and the Cape of Good Hope, 2,450 miles.

A vast amount of the crown land in the colonies has been latterly sold; but the quantity remaining unalienated is still immense, —1,917,367,000 acres for Australia alone, for instance. Partly in consequence of these sales we have an enlargement of the acreage of land under wheat of about a million and a quarter acres in eleven years, whilst the wheat and the oats produced are yearly larger, and the same remark applies in a lesser degree to potatoes and maize. The horses and horned cattle owned in the Australian colonies are continually increasing in numbers; and, in a less rapid ratio, the sheep and the pigs. It is less satisfactory to turn to the personal statistics, for the birth-rate of Australia seems to decrease; the marriage-rate is less than it was, and the death-rate slightly increased since 1871. But looked at in the total there is a gratifying progress in material things in the colonies, and more especially in the Australian group, which will mark itself satisfactorily in the future.

THE IPSWICH POST-OFFICE COMPETITION.

THE committee appointed to conduct this matter arranged with Mr. Chas. Barry that he should, for the sum of sixty guineas, inclusive of all expenses, proceed to Ipswich, examine the twenty-two plans sent in in competition under certain printed instructions or conditions, and advise the committee which of the competitors

1st. Had complied with such instructions;
2nd. Which of those that had so complied was in h opinion best deserving the premium of 50 guineas offered
3rd. Which of all the plans sent in, under all the circumstances, he could recommend the Corporation to carry out.

Mr. Barry, on the 3rd of June last, reported in writing that he had examined twenty-one of the plans,—one set having been withdrawn,—and carefully considered the instructions issued to architects. After remarking on the discrepancy in the cubical contents of the proposed buildings, as given by the several architects, and on the estimates furnished with the several plans, he proceeds to state that—

"It must be remembered that no option was left to the competitors to make any reduction in the bulk of the building, in order to fit it to the cost prescribed. Each of them, therefore, was at liberty to believe (if he could) that the building might be carried out at the cost named, and competitors were, to a certain extent, justified in doing so by the double assertion practically made by the committee themselves, that a fixed bulk was to be erected for a fixed sum.

It is evident that unless the cost of each design was absolutely tested by builders' tender (which is not practically possible), this belief on the part of the competitors cannot be actually disproved, although I cannot myself believe that any of the designs could be carried out for 6,000*l.* Under such circumstances I cannot advise the committee to insist on absolute compliance with the conditions on these two conflicting points, as it is quite clear that either the accommodation of the building must be largely lessened (which would, I think, be very undesirable), or the outlay must be, of necessity, increased. There will be no injustice thus done by setting aside this condition to those who say they believe that these designs can be executed at or under 6,000*l.*, inasmuch as I think it clear that this could not be done in any case, and I can therefore only advise the committee that those who venture so to say are, in my judgment, mistaken.

Believing, however, that the committee desire me to guide them to some practical issue for which they cannot be held blameable by their colleagues in the corporation, or be chargeable with injustice to the competitors they have invited, I venture to take permission, therefore, to set aside the above conditions, which could not be complied with, and which alone cause difficulty, and address myself to your second reference, viz.:—

Which design of those which comply with all other conditions laid down best merits the premium of 50 guineas.

In my opinion the best design and the one which shows most mastery of architectural treatment, and has much dignity of its own, and which is treated as regards the necessarily differing levels of the floors in the two portions of the building (a very difficult matter for design) in the most satisfactory manner is that under the motto of 'Well Considered,' and to this should, I think, be awarded the premium.

Proceeding in this conviction, I think the treatment of the design I have above-named the most suitable as a basis for the Corporation of the final design, though I feel that if the committee are pleased to adopt this my recommendation, there are some points, both in the design and its internal arrangements, which may be improved, and which may become necessary on further conference with the Post-office authorities, or which may be suggested by those who are to occupy the new rooms in Public Offices."

Acting on this report the committee recommended that the premium of 50 guineas should be awarded to the author of the plans of "Well Considered," and that it be referred to them to confer with that gentleman on his plans, and to obtain specifications and tenders for the erection of the building.

The council adopted these recommendations. The author of the design selected is understood to be Mr. J. Johnson, of Queen Victoria-street London.

THE CHURCHES IN THE CITY OF LONDON.

AT the urgent request of many correspondents we republished lately a view given in our pages some five-and-twenty years ago of the twenty-nine churches in the City of London, then threatened with demolition (p. 489, *ante*). We have since been urged to reprint the views we gave at the same time, showing the remainder of the City churches, thrown together in two groups.* We have accordingly done so, and add the particulars which originally accompanied them.

Although we cannot exactly say of the churches of London as of a vast number in leafy England,—

"How beautiful they stand,
Those ancient churches of our native land!
Amid the pasture fields and dark green woods,
Amid the mountain clouds and solitudes;
By rivers broad that rush into the sea;
By little brooks, that with a lisping sound,
Like playful children, run by copse and lea!
Each in its little plot of holy ground,"—

* See vol. xii., pp. 199 and 255.

still they have each a story and a beauty of its own, and well deserve attention.

PLATE A.

No. 1 shows a portion of the Temple Church, the circular portion of which was founded before the year 1185, in which year it was dedicated by Heraclius, patriarch of Jerusalem. The oblong portion now used for service is a beautiful specimen of Lancet, or Early English architecture, of the thirteenth century. The connexion of this church with the Templars, the effigies in the "round," and its story generally, must be known to most of our readers.

No. 2. St. Mary Magdalen's, Old Fish-street-hill, was burned in 1666, and rebuilt by Wren in 1685, for the united parishes of St. Mary and St. Gregory.

No. 3. St. Alphage's, London-wall, was rebuilt in 1777, by Mr. Staines (afterwards knighted), retaining the lower part of the ancient tower, which may be seen inside. Mr. George Dance, jun., is said to have been the architect, but this is uncertain.

No. 4. Allhallows, Barking, is one of the most interesting old buildings in the metropolis, and contains several curious brasses and monuments.

No. 5. The Church of St. Magnus, London Bridge, has one of the best of the City steeples. The body of the church was built by Wren in 1676, but the steeple was not erected until 1705. The old church was one of the earliest victims of the Fire. The present church contains a tablet to Miles Coverdale, under whose direction the first complete printed English version of the Bible was published; and some curious pictures in the vestry-room.

No. 6. St. Bartholomew's the Less, within the precincts of the Hospital, has a curious interior, built by Dance in 1789 (who first destroyed the old building), and restored by the late Mr. Hardwick in 1825.

No. 7. St. Mary's, Aldermanbury, was burned in 1666, and rebuilt by Wren, as we now see it. Here lie the remains of the merciless Judge Jefferys.

No. 8. St. Benet's, Paul's-wharf, suffered like the last in 1666, and was rebuilt by Wren in 1685. Inigo Jones was buried in the old church.

No. 9. Christ Church, Newgate-street, is another of Wren's works, commenced in 1687, and completed in 1704. Here lie the remains of Richard Baxter, the well-known Nonconformist, and the learned Trapp, once its minister, still exhorts his congregation by his tomb,—

"'Though dead I preach; if ever with ill success
Living, I strove the important truth to press,
Your precious, your immortal souls to save,
Hear me, at least, oh! hear me from the grave."

Nor would we overlook the tablet to John Stock, many years a painter at the Royal dockyards, who left 13,700*l.* for the promotion of religion and virtue, and the advancement of literature.

No. 10. St. Martin's, Ludgate, preserves the memory of the ancient gate. The old church was burnt, and Sir Christopher Wren rebuilt it. The inscription on the front is a palindrome.

No. 11. St. Botolph's, Aldersgate, reminds us of another of the City entrances. It escaped the Fire, but had become unsafe in 1790, and was then for the most part rebuilt, at a cost of about 10,000*l.* The front next Aldersgate-street, merely a screen, is quite modern. Within the church there is a Gothic altar-tomb to the wife of Sir John Packington, 1563; and a cameo bust by Roubiliac to "Elizabeth Smith."

No. 12. St. Margaret's, Lothbury, stands over the ancient Walbrook. Wren rebuilt it after the Fire of 1666. The font is attributed to Grinling Gibbons.

No. 13. St. Peter's, Saffron-hill, is one of Sir Charles Barry's earlier works. It was built by Messrs. Souter, and cost, including schools, below 10,000*l.*

No. 14. St. Bride's, Fleet-street, was founded in very early times, as were most of those already mentioned; and here were buried Wynkyn de Worde and Sir Richard Baker, who wrote the "Chronicles of the Kings of England." The church was rebuilt by Wren between 1680 and 1703. The steeple is second only to that of Bow. It was shortened 8 ft. in 1764, when injured by lightning. Richardson, the author of "Sir Charles Grandison" and other works, lies buried here.

No. 15. St. Lawrence's, Jewry, was commenced in 1671, by Wren; the old church (and there was one here as early as 1293), having been destroyed by the Fire. The details of the façade next King-street deserve examination. There is a memorial of Archdeacon Tillotson, who was buried here in 1694. The vestry-room is handsome, and has some pictures.

No. 16. All Hallows, London-wall, escaped the Fire of 1666, but becoming dilapidated, was taken down, and the present church was built under the direction of Dance, the younger, between July, 1765, and September, 1767. The interior is a good specimen of what to avoid. Beloe, the translator of Herodotus, is buried here, and "Mr. John Patience, architect."

No. 17. St. Botolph's, Aldgate, was founded as early as the time of William the Conqueror. It escaped the Fire, but was pulled down in the following century, and the present structure was erected from the designs of George Dance, at the cost of 5,536*l.* 2*s.* 5*d.* There is a monument, with sculptured effigy, to Thomas, Lord Darcy and Sir Nicholas Carew, both beheaded.

No. 18. St. James's, Duke's-place, was built in 1727, in the place of one consecrated in 1622-3.

No. 19. Trinity Church Gough-square, is a modern structure of brick, built by Messrs. Haward & Nixon, from the designs of Mr. John Shaw. It was commenced in October, 1837, and finished in June, 1838. The body of the church is a hexagon, 47 ft. 6 in. in diameter, with an octagonal recess forming the chancel.

No. 20. The Church of St. Catherine Cree, Leadenhall-street, is a very curious structure of mixed style, rebuilt, as it is thought, by Inigo Jones. The old church, wherein Hans Holbein was buried, was pulled down, with the exception of the tower, still standing, in the beginning of the seventeenth century, and the present structure was consecrated by Bishop Laud in 1630-1. There is a monument to Sir Nicholas Throgmorton, 1570; and a tablet to one Richard Spencer, who, having seen great changes,—the Plague and the Fire,—left behind him "a good name, a deare wife, a vertuous example, and three daughters."

No. 21. St. Peter's, in the Tower. The Church of St. Peter-in-Chains is a romance in stone,—a tangible piece of the history of England. Here lie the remains of many who lost their lives for not thinking as those who were in authority did. The church was built at the end of the thirteenth or beginning of the fourteenth century.

No. 22. Wren's greatest work, St. Paul's Cathedral, the crowning glory of the City, has the finest outline, perhaps, of any building in the world.

PLATE B.

No. 1 represents St. Dunstan's-in-the-West, Fleet-street, built by the late Mr. Shaw, between July, 1831, and July, 1833. The old church escaped the Fire of 1666, and with its projecting dial, with two figures of savages the size of life, to strike the quarters, was a curious remnant of old London.

No. 2. St. Giles's, Cripplegate, one of the most interesting buildings in London. Here rest the remains of three notable Johns,—John Fox, John Speed, and John Milton. Cromwell was married here to Elizabeth Boucher. In the churchyard is a portion of old London wall.

No. 3. St. Andrew's-by-the-Wardrobe. This was built by Wren, after the Fire, at the cost of 7,060*l.*, and has some modern monuments by Bacon and Manning.

No. 4. St. Andrew's, Holborn, which escaped the Fire, but becoming ruinous, was taken down in 1686, and rebuilt from the designs of Sir Christopher Wren. The old tower remained in its original state till 1704, when it was repaired and disguised with a facing of stone. Richard Savage was christened here, and in the Register of Burials appears the name of "Chatterton," the luckless boy-poet of Bristol. The east window is filled with stained glass, by Price, of York, 1718.

No. 5. St. Andrew's Undershaft, speaks of May in the olden time. Here annually was raised one of the City poles, until the riot in 1517, which gained for the day on which it happened the title of "Evil May-day." The church stands in Leadenhall-street, and was built at the beginning of the sixteenth century. It well deserves a visit, when the tomb of John Stow must not be overlooked.

No. 6. St. Botolph's, Bishopsgate. The old church here stood till the beginning of the last century, and the present structure, built from the designs of James Gold, was consecrated in 1728.

No. 7. St. Dunstan's-in-the-East, with its curious spire carried on four arched ribs, built by Wren. The body of the church was built from the designs of Mr. Laing, from 1817 to 1821, at the cost, it is stated, of 36,000*l.*

No. 8. St. Dionis Backchurch, built by Wren, at two different times, after the Great Fire. Notice the syringes in the vestry for the extinction of fires at a time before Braidwood was.

No. 9. St. James's, Garlick Hithe. This church was also built by Wren, after the Fire. Over the projecting dial is a carved figure of St. James. Within there is a picture of the "Ascension," by Geddes.

No. 10. St. Bartholomew's-the-Great, in Smithfield, a history in stone too long for us to tell now. The body of the church, founded by Rahere about 1120, is of the Norman style; and, with the monuments and vestiges of the priory buildings, will well repay a visit. The oriel in the church was probably added by Bolton, who was prior from 1506 to 1532, and probably built Canonbury House, at Islington, one of the possessions of the priory.

No. 11. St. Mary's-le-Bow, the finest of Wren's spires. In connexion with this church, too, we have a long story. A Roman temple probably stood here originally; part of the Norman building which succeeded forms the crypt of the present structure. In the twelfth century it was the scene of a serious tumult, headed by Longbeard; and in 1284 one Ducket, a goldsmith, was assassinated there. The balcony in front of the tower was for the viewal of City shows. Near the old church there was a shed, built by Edward III., that he and his queen might behold the jousts. The doorway below the balcony deserves examination.

No. 12. St. Mary's, Woolnoth, the work of Nicholas Hawksmoor. The old church was injured by the Fire, repaired under the direction of Wren, and about 1716 taken down. Hawksmoor has shown much originality in his design. Here lies the Rev. John Newton, "once an infidel and a libertine."

No. 13. Allhallows-the-Great, in Thames-street. The ancient church was burnt in 1666, and the present structure was built under the direction of Wren in 1683. It is remarkable for a carved oak chancel screen.

No. 14. St. Antholin's, which stands at the east end of Watling-street. It was rebuilt in 1682 by Wren, and is noticeable for its spire and the oval dome which covers the body of the church.

No. 15 indicates St. Stephen's, Walbrook, the interior of which has received more praise than any other of Wren's works. It unquestionably has a great charm, although the details are of an indifferent character. An account of the church, and some particulars of curious documents in the vestry, will be found in a preceding volume.

No. 16. St. Michael's, Cornhill. The old church having been burnt in 1666, Wren rebuilt the body of it in 1672; and fifty years afterwards took down and re-erected the tower. The church is Italian in style, the tower Perpendicular Gothic. The latter has a bold, striking outline, but the details will not bear examination.

No. 17. St. Olave's, Hart-street, of which we gave some particulars in a recent number (vol. xii., p. 226, *ante*).

No. 18. St. Stephen's, Coleman-street, has the usual story. It was destroyed by the Fire and rebuilt under Wren in 1676. There is a painting in the vestry-room. Amongst the monuments in the old church was one to Master Anthony Munday,—

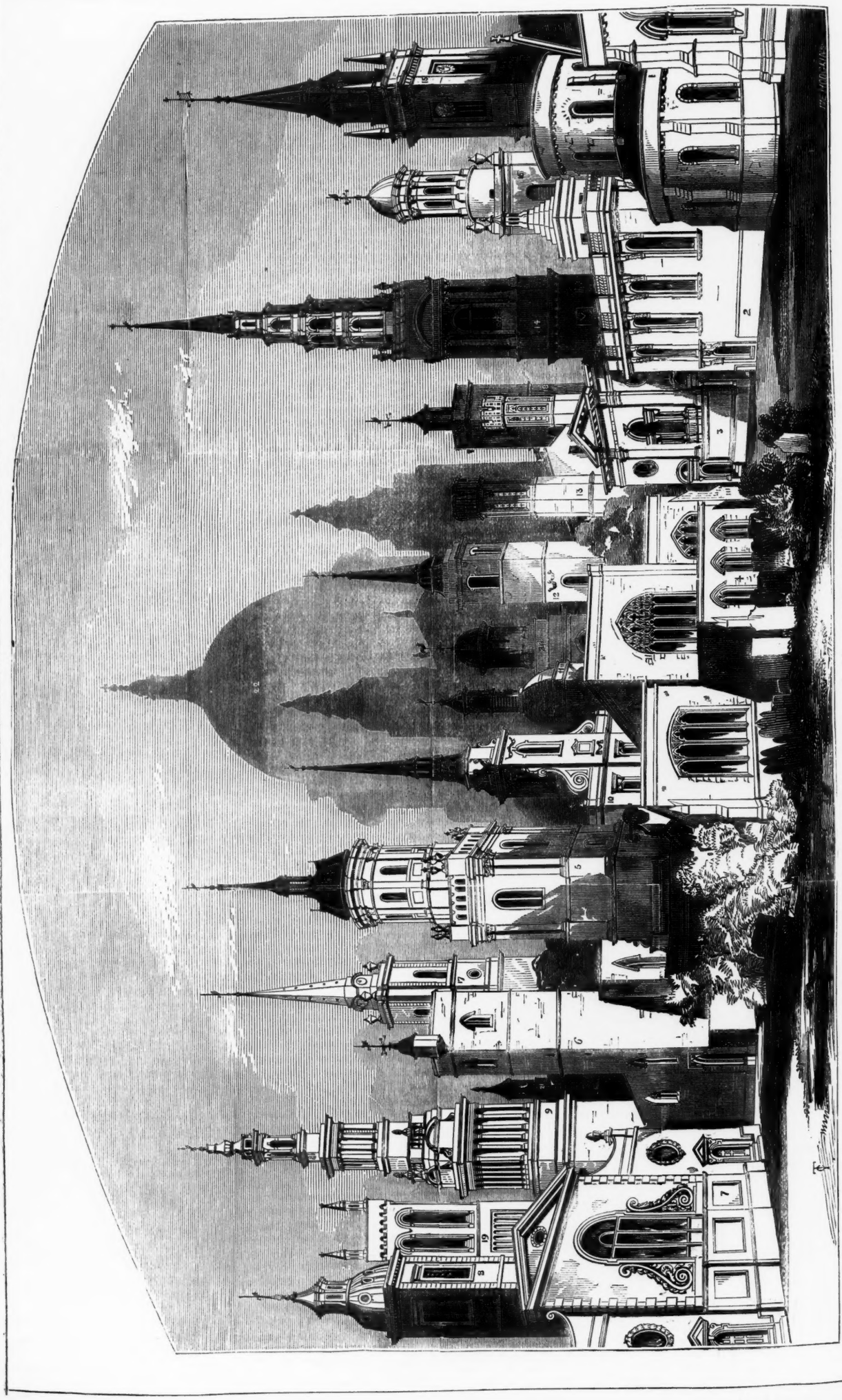
"That survaid
Abstruce antiquities, and o'er them laid
Such vive and beauteous colours with his pen,
That (spite of time) those old are new again."

No. 19. St. Vedast's, Foster-lane, which was rebuilt after the fire under the direction of Wren. The spire is graceful and clever.

No. 20. St. Augustine's, Watling-street, built in 1683, by Wren. The steeple was not finished until 1695.

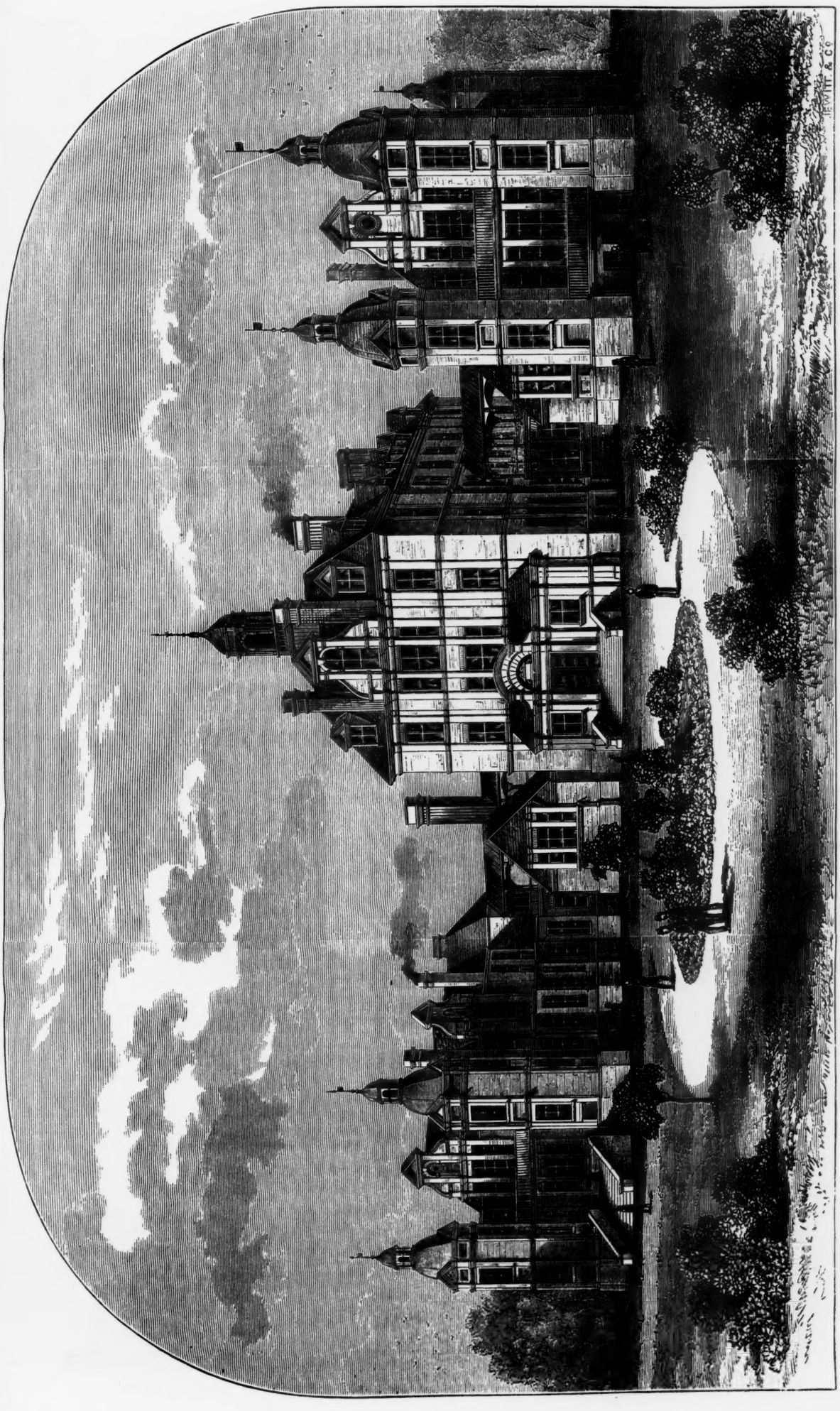
No. 21. St. Sepulchre's, Skinner-street, which retains its ancient tower and beautiful Gothic porch. The body of the church was restored by Wren after the Fire. About 1836 a new roof and ceiling were formed.

If we add to these St. Bartholomew's, of the Exchange, a building by Wren, which was removed from its original position some years ago, and re-erected in Moor-lane, Fore-street, under the direction of Professor Cockerell, we shall then have before us the whole of the churches which stand within the City boundaries.

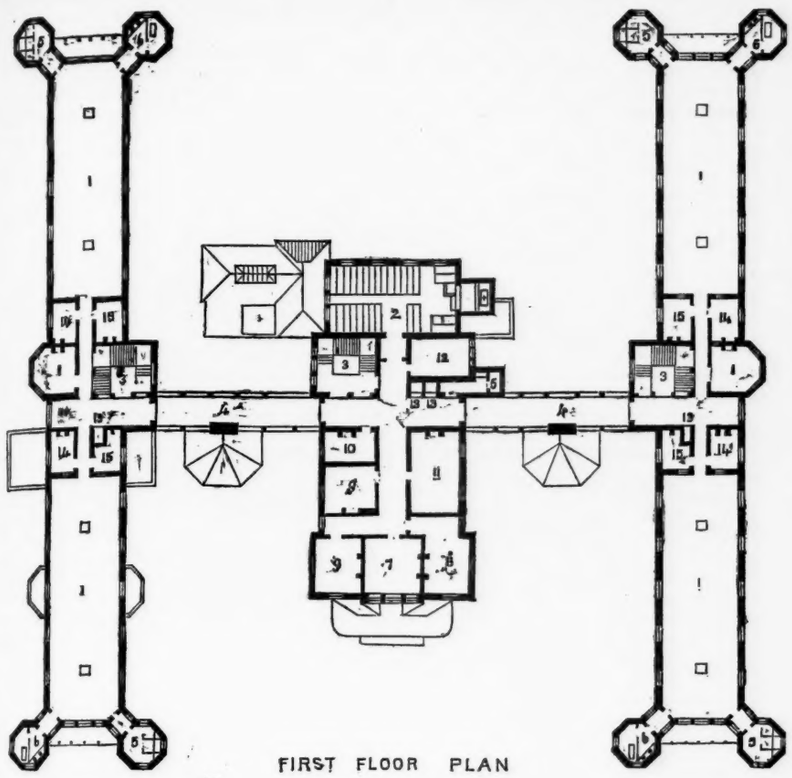


CHURCHES IN THE CITY OF LONDON.—PLATE A.

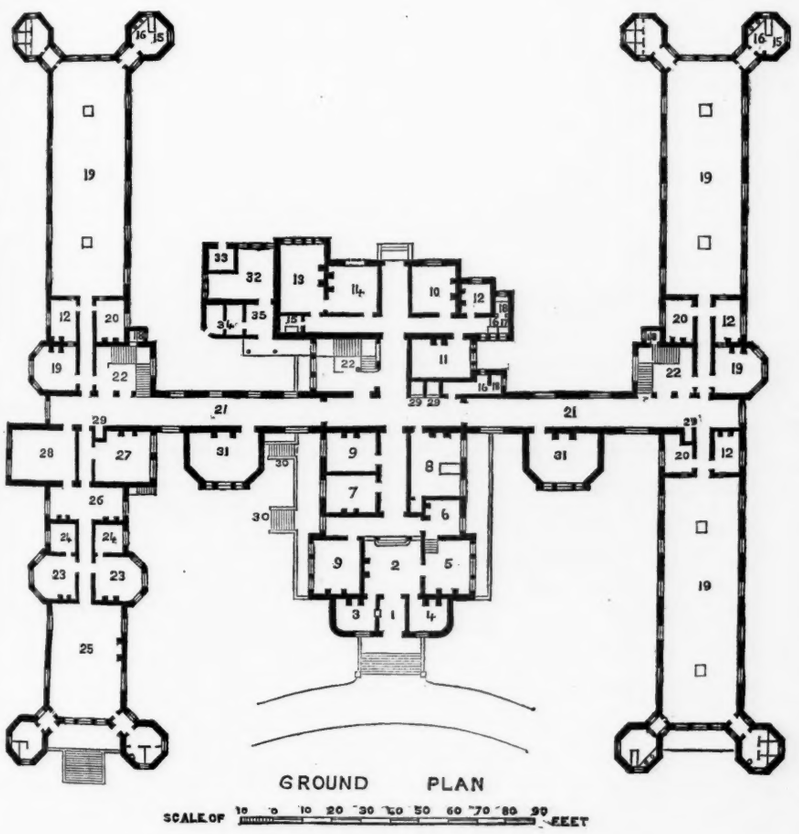
CHURCHES IN THE CITY OF LONDON.—PLATE B.



LINCOLN NEW COUNTY HOSPITAL.—MR. ALEXANDER GRAHAM, ARCHITECT.



FIRST FLOOR PLAN



GROUND PLAN

SCALE OF 10 0 10 20 30 40 50 60 70 80 90 FEET

References to First-floor Plan.

1. Wards.
2. Chapel.
3. Staircases.
4. Covered way.
5. Water-closets.
6. Baths.
7. Superintendent of Nurses.
8. Nurses' day-room.
9. Matron.
10. Chaplain.
11. Linenry.
12. Mattresses.
13. Lifts.
14. Nurses' rooms.
15. Ward sculleries.

References to Ground Plan.

1. Entrance-lobby.
2. Hall.
3. Porter.
4. Waiting-room.
5. Surgery.
6. Examination-room.
7. Medical Officer's room.
8. Accident reception-ward.
9. House Surgeon's rooms.
10. Eye ward.
11. Eye ward.
12. Nurses' rooms.
13. Operating-room.
14. Operating-ward.
15. Baths.
16. Lavatories.
17. Sinks.
18. Water-closets.
19. Wards.
20. Ward sculleries.
21. Principal corridor.
22. Staircases.
23. Consulting-rooms.
24. Retiring-rooms.
25. Out-patients' waiting-room.
26. Out-patients' dispensing lobby.
27. Dispensary.
28. Board-room.
29. Lifts.
30. Steps to basement.
31. Day-rooms.
32. Washhouse.
33. Disinfecting-chamber.
34. Ashes.
35. Yard.

LINCOLN NEW COUNTY HOSPITAL.—*Plans.*

LINCOLN NEW COUNTY HOSPITAL.

THE principal portion of the new hospital was opened for the reception of patients last autumn. It stands on an elevated site of about eight acres, facing nearly due south, having a light soil with a rock foundation, and with a gentle slope from north to south. The group of buildings comprising the present hospital consists of a central or administrative block, and two pavilions, all connected by a corridor, 10 ft. 6 in. wide, on the ground story, and by a covered way of the same width on the first story. The central block is five stories high, having a half basement story sunk 6 ft. below the surface, resting on the solid rock. The pavilions east and west of it are only two stories high, but in consequence of the slope of the ground, are raised 6 ft. above the surface at their lower ends, thereby insuring a free circulation of air below the ground story.

The central block contains, on the ground story, an entrance-hall, 21 ft. square, porter's and receiving-rooms, a surgery and examination-room, a medical officers' consulting-room, to be used as a library, an accident receiving-room, with bath, and rooms for the resident surgeon. In the rear are eye-wards for males and females, an operation-room, and a ward adjoining. On the first story are rooms for the matron and housekeeper, linenry and bedding-room, day-room for nurses, and chapel. On the second story are separate dormitories for day and night nurses, with accommodation for house servants. On the third story are a series of wards for children, with nurses' rooms attached, and the usual ward offices. The basement story comprises the kitchen offices, cellarage, and detached boiler-rooms, all of sufficient capacity to meet the requirements of any future enlargement of the hospital.

The west pavilion is appropriated to female patients, with the exception of the ground-story of the south wing, which forms a complete out-patients' department, with consulting and retiring rooms, board-room, and dispensary. This department is quite distinct from the hospital proper, and with separate ingress and egress. The east pavilion forms the hospital for male patients, the ward arrangements being the same in both cases.

Wide stone staircases of easy ascent are provided in each of the three buildings, all carried up to the topmost stories. There are also hoist lifts in each block, and a separate coal-lift in the central block; also dust-shoots on each floor, speaking-tubes from the various corridors, and electric-bells, all communicating either with the central hall or the kitchen-corridor in the basement story.

The large wards are each 88 ft. by 26 ft. 6 in., the lower ones being 14 ft. high, and the upper ones 16 ft. high. The beds are arranged in pairs between each window, the space between each bed being 5 ft. A nurses' room and scullery are attached to the large wards, with inspection windows commanding all the beds; the sculleries being fitted with small ranges, gas-stoves for use in summer weather, and airing-closets for linen. At the extreme ends of the large wards are octagonal turrets measuring 10 ft. internally each way, and cut off from the wards by lobbies 5 ft. square, with double doors, and a window on each side to secure constant cross-ventilation. One of these turrets contains a bath-closet and lavatory, the other a slop-sink, urinal, and water-closets.

The warming of the wards, rooms, and offices throughout is by open fires, and of the corridors, staircases, and chapel, by hot-water pipes on Perkins's principle. All the wards and principal offices have improved ventilating grates, supplied by Mr. D. O. Boyd, of Maddox-street, those in the large wards being placed in the centre of the floor and cased with terra-cotta. As a provision in case of severe weather, the hot-water pipes are extended to the large wards. The ventilation of the wards and principal rooms is provided for (apart from the windows, which are sash-windows in pairs opening up to the ceiling, the topmost sashes falling inwards) by inlet shafts in the walls carried up from the basement, and terminating in the several rooms about 6 ft. above the floor-line, having zinc purpose-made mouthpieces, with valves for regulating the supply of air to be admitted. Outlets are placed in every room below the ceiling-line, those in the wards having separate shafts carried up between the smoke-flues, and those in all other rooms having Boyle's valves fixed in the chimney-breasts. The gas-burners are provided with large-mouthed outlets in the ceilings, communicating

with shafts carried up the walls and terminating beneath the eaves or continued with the smoke-flues.

The external walls of the entire buildings are of brick, 20 in. thick, with a clear hollow space of 2 in. in the centre. The materials employed are local bricks, with selected facings, and Ancaster stone for all copings, string courses, and other masonry; Luxembourg green slates for the roofs, and fir timber for all joinery, except in the chapel, which is of pitch-pine. The ward floors are of English oak, and the walls are finished in Parian cement and painted. The walls of water-closets, baths, and lavatories are lined to the height of 5 ft. with white tiles. The corridors and passages are paved with tiles on brick arches.

Mr. Alexander Graham, of Carlton-chambers, Regent-street, is the architect, and Messrs. Barnes & Wright, of Lincoln, are the contractors for the entire work.

SOME EXHIBITS AT THE KILBURN SHOW.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

THE International Agricultural Exhibition at Kilburn, opened on Monday last, and to remain open until Monday evening next, will be found well worth visiting by those who are practically engaged in building, inasmuch as amongst the machinery in motion are to be found a large number of wood-working, brickmaking, stone-moulding, and other machines, such as mortar-mills; while in the implement sheds may be seen a large number of contrivances and appliances intended to facilitate the construction and improve the sanitary condition of buildings of all kinds.

Before looking to these, however, we must say one word from another point of view. Probably no country but our own could have erected the same extent of buildings, temporary though they are intended to be, with the same amount of utter and unredeemed ugliness as is here to be found. No horde of savages could have built such an extensive and costly kraal without displaying here and there some slight compliance to the cravings of human nature for the beautiful. A bit of grass and a few flowers, the advertisement of a well-known seedsman, form an oasis in the midst of this dreary agglomeration of planks and canvas, which by force of contrast extort an amount of admiration from visitors wholly unjustified by the weakly effort itself. From this point of view the show is a discredit to the Society.

How some of the heavy exhibits have been got into position is a marvel, considering the present aspect of that part of the show-yard devoted to implements. The heavy rains of the past fortnight have caused the clay surface of the greater portion of this half of the show-yard to become, as it were, completely churned or ploughed up by the traffic of the heavily-laden vehicles bringing machinery and implements for exhibition, until it formed an impassable quagmire, many wagons and lorries containing boilers and engines being hopelessly stuck in the mud up to the naves of the wheels, even on the opening day. So great, indeed, have been the difficulties and dangers attending the getting into position of the exhibits in the implement and machinery sheds, that no fewer than thirty valuable horses belonging to the railway companies had to be killed last week in consequence of injuries received. Some amelioration was effected during the latter end of the week by covering portions of the principal avenues with transverse wooden sleepers placed close together, and by laying down a large quantity of burnt brick ballast. Without further preface we will proceed to draw attention to some of the exhibits which will be of more especial interest to our readers. As the implement and machinery sheds stretch completely across the widest end of the show-yard, —viz., that nearest the main entrance in Salusbury-road,—we will, for the convenience of visitors, refer to the exhibits of which we wish to make mention in the numerical order of the "stands" or show-spaces, merely premising that the numbering of the stands begins in the left-hand corner of the show-yard as the visitor enters from Salusbury-road.

Stands 5 and 522 are allotted to Messrs. Ransomes, Sims, & Head, of Ipswich, who exhibit a number of portable and stationary steam engines and boilers, besides a large collection of new and powerful agricultural implements, fully maintaining the repute of the Orwell Works.

At Stand 18, Messrs. G. Waller & Co., of Holland-street, Southwark, exhibit horizontal and vertical engines, sewage pump, penstock, tide flap, stoneware pipes, Latham's patent sewer ventilator, and other articles,—all of their own manufacture.

Stand 34 is occupied by Messrs. Banner Bros. & Co., who exhibit their well-known ventilating cowls, soil-pipes, and drain-traps.

At Stand 35 Messrs. Ewart & Son, of Euston-road, show their "Empress" and "Prince" ventilators and smoke curves, in various sizes.

Stand 53 is occupied by Messrs. Croggon & Co., of Upper Thames-street, who exhibit, besides their well-known roofing and hair felt, a number of articles in galvanised iron, including pig and cattle troughs, and wire netting for poultry enclosures, &c.

Messrs. J. G. Smeaton & Co., of Fulham, show, at Stand 64, their "Surprise" and "Excellentia" boilers for hot-water circulation.

Stand 73 is occupied by Messrs. Piggott, Brothers, who show rick-cloths, waterproof engine-covers, marquees, &c.

Stands 74 and 700 are occupied by Messrs. Francis Morton & Co. (Limited), of Liverpool, with some notable things in the way of fences and field railings, palisadings, hurdles, and gates, all manufactured by the exhibitors.

At Stand 82, Messrs. Cottam & Co., of Winsley-street, Oxford-street, are well represented by their specialities in stable and cow-house fittings. Some harness brackets exhibited by them embody improvements which ventilate and preserve the shape of the harness. We may also mention this firm's improved wrought-iron hinges and gate fastenings.

Stand 84 is devoted to the exhibits of Messrs. Musgrave & Co. (Limited), of New Bond-street and Belfast. Specially deserving of mention among their stable-fittings are their improved loose box, readily convertible into stalls; their patent "harmless" manger fittings; and their patent cow-house and piggery fittings. This firm appears to devote considerable attention to the efficient drainage and ventilation of stables.

Stand 92 is occupied by Messrs. Treggon & Co., of York Works, Brewery-road, N., who have a goodly array of galvanised iron, cattle, and pig troughs, corn bins, wire netting, cisterns, zinc dormers, corrugated roofing, &c.

At Stand 95, Messrs. Barnards, Bishop, & Barnards, of Norwich, exhibit not only such utilitarian articles as stable and harness-room fittings, cattle fences, sheepfold hurdles, pig and dog troughs, &c., but some highly-wrought iron gates, including those which, at the Paris Exhibition, formed the entrance to the courtyard leading to the apartments of H.R.H. the Prince of Wales.

Stand 135 is occupied by the St. Pancras Ironworks Company, who well sustain their reputation by their patent stable and harness-room fittings. They show a complete stable of seven stalls and two loose boxes; also a large collection of sanitary fittings for cowhouses and piggeries.

At Stand 138, Messrs. Bayliss, Jones, & Bayliss, of Wolverhampton, have a good display of their patent tubular continuous bar and wire fencing for agricultural and other purposes, together with several specialities in the way of hurdles.

Messrs. Picksley, Sims, & Co. (Limited), of Leigh, Lancashire (Stand 188), show some chaff-cutters and a large variety of more strictly agricultural implements and machines.

Messrs. John Fowler & Co., of Leeds (Stand 189) exhibit a large number of steam ploughs and cultivators, one of their specialities being a steam scoop, a very powerful implement intended for excavating large quantities of soil. We hear that it is being employed in Australia in sinking excavations or "dams" as much as 24 ft. deep in the beds of rivers, for holding water during the dry season.

Messrs. Hayes & Son, of Stamford and Peterborough, exhibit (Stand 245) a good collection of wheeled vehicles for common reads. We may specially mention their improved builder's or timber-merchant's van (No. 5,633 in catalogue); their builder's or joiner's spring tip-cart (5,634); and their extra strong contractor's cart (5,636). This firm also exhibits some improved barrows for navvies and brickmakers.

Stands 293 and 414 are occupied by the Pulsometer Engineering Company, who exhibit their well-known Pulsometer or contractor's pump, in various sizes, and, among other things, Perrett's patent rotary cleansing filter (6,925), stated to be capable of filtering from 2,000 to 3,000 gallons of muddy water per hour, so as to render it fit for certain manufacturing purposes, boiler-feeding, swimming-baths, and so on.

Stand 313 is allotted to Messrs. Entwistle & Kenyon, who exhibit their "instantaneous grip" vices (Riley's patent), made in separate forms for engineers and for the joiner's bench.

Messrs. John Warner & Sons, of the Crescent Foundry, Cripplegate, occupy Stand 320; their exhibits include a four-arm Cressy Colonial or farm windmill-pump; two of Warner's improved patent self-regulating and winding annular sail wind-engines, for use in pumping, chaff-cutting, wood-sawing, &c.; also a number of turbines, rams, pumps, and other appliances connected with water supply.

At Stand 323, Messrs. Burney & Co., of Millwall, exhibit a number of strong wrought-iron cisterns, both galvanised and painted, together with wrought-iron tank-carts for water, liquid manure, &c. They also show a number of wrought-iron cattle-troughs, with "registered safe edge."

Stand 327 includes a number of new appliances, manufactured and exhibited by Messrs. Voice, Godfrey, & Co., of Broad-street, Bloomsbury. The exhibits include Voice's patent "hydrostatic" water-waste preventer (7,678). Its capacity is two gallons, and it is constructed to resist 400 ft. pressure of water on the main, and can, we are informed, be made to resist any pressure above that by lengthening the pipe at top. The same patentee's hydrostatic supply-valve for urinals; his valve-seat-action and regulator; and his waste-preventer pan closets, are also among the specialities exhibited by this firm.

Stand 328 is occupied by Moule's Patent Earth Closet Company, of Garrick-street, Covent-garden, who exhibit numerous specimens of their closets and earth sifters and driers, together with Field's patent flush-tank (7,709), manufactured by Doulton, of Lambeth.

The Sanitary Appliances Co. (Stand 329) exhibit varieties of Morrell's earth-closets.

Messrs. Woods, Cocksedge, & Co., of Stowmarket (Stands 348 and 401) have a large array of engines and agricultural machinery and appliances, including a road-watering or liquid-manure cart and a contractor's or local board cart (8,165).

Messrs. Bellamy & Co., of Byng-street, Millwall, exhibit (Stand 353) a large and varied collection of wrought-iron water-cisterns and oil-tanks, painted and galvanised, together with safety tanks for paraffin or spirit; wrought-iron riveted corn-bins; wrought-iron cattle water-troughs,—some of the latter with Bellamy's registered "Climax" edge; and wrought-iron water-cart bodies—all manufactured by the exhibitors.

Messrs. Robey & Co., of Lincoln (Stands 379 and 396) exhibit their Robey fixed engines and locomotive boilers combined; a self-acting circular saw-bench (8,907); and a variety of agricultural machinery.

Stand 421 is occupied by Messrs. Waygood & Co., of Falmouth-road, Newington, who exhibit, among other appliances, their steam power passenger and goods lift, which, as we have previously recorded, has been adopted in several important new buildings.

Messrs. Tangye Bros. & Holman, of Queen Victoria-street (Stand 433), show a number of horizontal and vertical engines.

Stand 439 is appropriated to Messrs. Le Grand & Sutcliff, of Magdala Works, Bunhill-row, proprietors of Norton's patent "Abyssinian" Tube-wells, who exhibit, in addition to various specimens of tubes, pumps, and well-driving apparatus, one or two novelties, foremost amongst which we may mention their patent tubular pile, which is driven by allowing the weight to drop down inside the tube to the lower part of the pile, thus bringing the impact of the blow where it will have most effect. A very simple and yet ingenious application of this pile is seen in the exhibitors' patent round post-hole rammers, which very readily and quickly enable holes to be made for scaffold or telegraph poles of the exact size required, without loosening the soil by excavation. The post-hole rammer consists of two parts, firstly, of a small tubular pile, circular in section, but made square at the top, and pointed at the bottom. This pile is driven into the ground for its full depth (which varies with the size of the pile, which again varies with the size of the pole required to be erected) by hand with an iron rammer work-

ng inside the pile. The top end of this rammer is fitted with a square key, so that the rammer is also a spanner fitting the square top of the pile, and when the latter has been driven to the required depth, a turn or two of the key loosens the pile and enables it to be readily drawn up, leaving a hole into which the pole can be dropped. This appliance is now being used by the Royal Engineers in Zululand for the erection of telegraph-poles. Where it is desired, dwarf tubular piles are used as the permanent foundations or sockets of telegraph-poles or signal-posts, flagstaffs, tent-poles, lamp-posts, &c. The applicability of the invention to the rapid erection of railway signal-posts is shown by one of Messrs. Le Grand & Sutcliff's exhibits,—a 20 ft. signal-post resting in a cast-iron socket rising from a triangular bed-plate, the three angles of the bed-plate resting upon and secured to flanged dwarf tubular piles. By this method of fixing, no portion of the wood of the post is buried in the ground. Norton's patent turnstiles, with some improvements, are also exhibited at this stand, and are used at the entrances to the Show.

At Stand 441, Mr. J. C. R. Okes, of Queen Victoria-street, exhibits three of Vosper's patent four-cylinder engines; a circular saw-bench; Clark's patent gas apparatus (9,602); a model of Okes & Robinson's patent sewage filter press; and the "Victoria" leather belting.

Stand 442 is occupied by Messrs. Hayward Tyler & Co., of Whitecross-street, who exhibit Rider's patent hot-air engines for pumping and other purposes; Cope & Maxwell's patent "Universal" steam pumps; a number of highly-finished horizontal engines; and other miscellaneous articles.

Stand 446 is appropriated to Mr. Thomas Thomas, of Merthyr Tydfil, who exhibits his "automatic self-sustaining" hotel and warehouse lift or hoist, together with a dinner-lift and a sack or bale hoist,—all on the same principle. They are simple in construction, and easily worked and managed.

Messrs. Bartram & Powell exhibit, at Stand 450, their patent "Comet" pump; and, among other articles, Michele & Carrington's cement tester (9,790).

Stand 462 is tenanted by Mr. F. W. Jackson, of the Kingsbury Ironworks, Ball's-pond, who shows a number of meritorious appliances, including the "A 1" combined vertical steam-engine, clay and mortar mill, mounted on a wheeled platform, and therefore portable. This arrangement has been specially designed for the use of contractors and builders. By the use of simple disengaging gear, the engine can be worked independently of the mortar-mill, and other plant, such as saw-benches, may be worked by a belt off the fly-wheel. Another speciality at this stand is the "Cheap" barrow-hoist, very simple in construction, and provided with friction gear, self-acting brake gear, driving pulley, &c.

At Stand 463, Messrs. Western & Co., of Belvedere-road, Lambeth, exhibit a stone-moulding and planing machine, manufactured by themselves. They also exhibit one or two other specialities, including Hamilton's patent illuminating stall-board, and the same patentee's prismoidal and other pavement and floor-lights.

Messrs. Whitehead & Co., of the Albert Works, Preston (Stand 469), show their new patent "Albert" brick, tile, and pipe machine (9,969), which is portable, being mounted on a bed-plate, supported by wheels. The action of the machine is such that bricks, tiles, or pipes may be made by the same machine by varying the dies, and the action of the machine is such that the return of the push-plate or piston is made at about double the speed at which it advances. There are no racks in the machine, and no lifting-lid to the clay-box, which is filled by the attendant during the return of the push-plate. This machine is well adapted for the manufacture of perforated bricks, producing them, we are informed, at the rate of about 13,000 per day. The machine is very compact and simple, and is easy to work. The same firm exhibit a number of specimen bricks and tiles made with the machine by the Knutsford Brick and Tile Company, all the samples presenting a very clean, smooth, and hard surface. Messrs. Whitehead & Co. also exhibit their combined "four-process" brick and drain-pipe making machine (9,970); the double-process brick-making machine (9,971); and their improved tile and pipe machines, Nos. 1 and 2 (9,972-73).

At Stand 473, Messrs. Wurr & Lewis, of Cambridge-road, exhibit a number of combined and single circular and band-sawing machines, saw-benches, &c.; also an improved vertical moulding machine (10,000), and an improved mortar-mill (10,001), with pan 6 ft. diameter.

Stand 474 is devoted to the exhibits of Messrs. Charles Powis, Carter, & Morris, of Millwall, including the "Joiner Universal" (10,007); the "Estate Carpenter" (10,009), suitable for preparing joinery work on estates; a number of saw-benches, moulding, mortising, and band-sawing machines; a new patent vertical moulding machine (10,016); and (10,017) a new patent continuous rotary and self-lubricating brick machine, which grinds, pugs, moulds, and presses plastic clay into double panelled bricks at one operation.

Messrs. F. W. Reynolds & Co., of Southwark (Stand 476), have a very fine show of wood-working and other plant. So numerous are their exhibits that we can only make mention of a few typical ones. No. 10,032 in the Show Catalogue is Messrs. Reynolds's new patent steam power combination circular and band sawing machine, "The Briton." No. 10,037 is their new patent multiple action mortising, boring, core-driving, and tenoning machine, the "Southwark," described and illustrated by us about a month ago (see p. 611, *ante*). We must notice also their self-acting blind lath painting or varnishing machine, Roberts's patent (10,040), capable of painting or varnishing 600 laths per hour on both sides, so that, reckoning 5 ft. as the length of each lath, 6,000 ft. run of lath surface can be painted in one hour, and this without the aid of steam power. The machine is also applicable to the painting of hoop iron, &c. The same firm's double slate-holer, "The Acme" (10,046), will take a 14 in. slate, and is capable of holeing 1,200 per hour without breakage. Messrs. Reynolds's 6 ft. mortar-mill, "The Spécialté" (10,056), is fitted with adjustable rings on the roller shaft so as to allow of the rollers being shifted from time to time in order to equalise the wear of the bottom plates.

Stand 483 is occupied by Messrs. Thomas Robinson & Son, of Rochdale, with their patent stone-dressing machine, for tooling, planing, and moulding stone.

At Stand 506 Messrs. Allen Ransome & Co., of Stanley Works, Chelsea, exhibit, very appropriately, a series of five ingenious machines for making butter-firkins and other casks. The set of machines, worked by steam power and attended by one man and six lads, will, we were informed, produce 250 butter-firkins in ten hours, ready for hooping-up, at a cost for wages of 18s. The particular set of machines exhibited is destined for the manufacture of fish-casks in a large establishment in Boulogne. During the time the Show is open Messrs. A. Ransome & Co. will exhibit, at their works in the King's-road, Chelsea, a large assortment of wood-working machines specially adapted for estate work and for implement-makers, builders, &c.

Messrs. Newton, Chambers, & Co., of the Thorncliffe Iron Works, Sheffield, exhibit in action (Stand 507) two of their patent close and open-fire cooking ranges.

At Stand 511, Messrs. W. Olley & Co., of High-street, Borough, exhibit their patent circular saw-bench (10,387), with drag-motion; and a number of other saw-benches, mortising-machines, joiners' tools, &c.

Stand 531 is occupied by Messrs. Clayton & Shuttleworth, of Lincoln, their exhibits including (among engines, boilers, and agricultural machinery of all kinds) a strong iron frame circular saw-bench, adapted for estate work.

Messrs. Davey, Paxman, & Co., of Colchester (Stand 532) show a number of portable and other engines, and a circular saw-bench.

Stand 543 is tenanted by Messrs. W. Foster & Co. (Limited), of Lincoln, who exhibit three portable steam-engines, thrashing-machines, &c.

At Stand 545, Messrs. Brown & May, of Devizes, show half a dozen portable engines of their own manufacture.

Messrs. Barrows & Stewart, of Banbury, exhibit (Stand 553), with other things, a combined engine, boiler, and mill, with pan 6 ft. diameter, suitable for grinding coprolites, mortar, &c.

Stand 564 is occupied by Messrs. Rownson, Drew, & Co., of Upper Thames-street, who exhibit their "Cyclops" portable forges and power-fans, and other articles.

The Sun Gaslighting and Heating Company, of Southwark-street, exhibit (Stand 568) their "Auto-Pneumatic Gas-making Machine" and automatic street-lamps. The latter are in practical use in (among other places) the suburbs of Colchester.

Messrs. Crossley Brothers, of Manchester, show in motion (Stand 571) five of their now well-known "Otto" silent gas-engines, varying from ½-horse power to 16-horse power nominal. We were informed that the latter gives out about 25-horse power on the pulley, and that it is the largest gas-engine yet produced in the world with a single cylinder. The cost of gas for these engines is stated at 1d. per horse power per hour.

At Stand 650, Messrs. Elliman, Sons, & Co., of Slough, exhibit their embrocation,—useful to all horse-owners.

Stand 668 is that of Messrs. Rosser & Russell, of Charing-cross, who show their "Amateur" lean-to greenhouse and hot-water apparatus suitable for the same.

Stand 670 is occupied by a glass erection showing Rendle's patent system of roof glazing. Mr. Rendle's system has been well tried, without being found wanting. It is to be used at the new Shoreditch Goods Station of the Great Eastern Railway,—a building that will cover ten acres of ground.

Mr. G. E. Pritchett, architect, Bishop's Stortford, shows (Stand 680) specimens of his patented construction of hollow walls and flooring, which consists in a combination of agricultural drain-pipes and concrete.

At Stand 683, Mr. John Matthews, of the Royal Pottery, Weston-super-Mare, exhibits specimens of Poole's patent "bonding-roll" roofing tiles, some agricultural drain-pipes, and a collection of terra-cotta vases, pedestals, fountains, &c., all manufactured by the exhibitor.

Stand 694, that of the Coalbrookdale Company, has for its central feature a large and costly cast-iron fountain. It is between 35 ft. and 40 ft. high, the diamater of the lower basin being 30 ft. It is the gift of Mrs. Margaret Strang Crooks to the town of Kilmarnock. This Company make a large display, their other exhibits including numerous smaller fountains, a number of statues, vases, flower-stands, &c., and several pairs of park gates,—one pair designed by Mr. B. J. Talbert.

At Stand 699, Mr. James Howorth, of Farnworth, exhibits a number of his patent revolving "Archimedian" screw ventilators, in various sizes.

A shed is specially set apart for the exhibition of plans of farm-buildings, but we are unable to speak of these because, for some reason not ascertainable, the shed was not opened to the public on the occasion of our visit on Monday last, although a peep through the windows enabled one to see that the plans were hung and apparently ready for inspection.

During the continuance of the Show, Messrs. Samuel Worssam & Co., of the Oakley Works, King's-road, Chelsea, are exhibiting in operation, at their factory, a complete set of wood-working machines.

We may have more to say next week with reference to the Show.

THE PARKES MUSEUM OF HYGIENE.

ON Saturday last this museum, temporarily located in upper rooms at University College Hospital, Gower-street, was publicly opened by the Right Hon. R. A. Cross, Secretary of State for the Home Department. Arriving at the Museum at four o'clock, Mr. Cross, who was accompanied by Lord Cranbrook, the Duke of Northumberland, Cardinal Manning, Sir Thomas Watson, Professor Corfield, Professor Erasmus Wilson, Mr. Edwin Chadwick, C.B., Sir J. Bazalgette, and others, having inspected the museum, a meeting was held in the Botanical Theatre, presided over by Mr. Cross.

Mr. G. V. Poore, M.D., one of the honorary secretaries, read a report detailing the origin of the museum. We give the following passages:—

When Dr. Parkes's lamented death occurred in the spring of 1876, it was strongly felt by his professional and personal friends, as well as by those who had known him officially, that some steps should be taken to perpetuate the memory of a man whose existence had proved of almost unparalleled utility to others.

At a public meeting held under the presidency of Sir William Jenner, on the 18th of June, 1876, it was unanimously resolved that the memorial should take the form of a Museum of Hygiene.

With a view to carrying out this resolution, an executive committee was appointed, and in selecting the members of this committee the fact was not lost sight of that hygiene is a matter which concerns all classes. It was with a view to the thorough representation of hygiene, in all its aspects, that the committee was made to embrace gentlemen of many professions, and we were fortunate in being able to

find in this college not only physicians and surgeons, but professors of hygiene, architecture, engineering, and chemistry, who have all aided in furthering the work.

The first difficulty was in finding a suitable locality for the museum, and the committee desire to express their deep sense of the timely help which has been rendered them by the council of University College, who placed at their disposal the rooms in which the collection is now arranged. Without this help nothing could have been accomplished, for the funds at the disposal of the committee were not sufficient to rent, and still less to erect, a suitable building for the museum. The council of University College have, however, stated that they cannot guarantee a permanent home for the museum, so that it becomes the duty of the Executive Committee to make serious efforts to obtain, by purchase or otherwise, a permanent resting-place for the various articles which they have collected.

In determining what the museum should contain, the committee have tried to limit their endeavours mainly to an attempt to illustrate visually the various subjects which are treated of in Dr. Parkes's book on Practical Hygiene. The articles exhibited are arranged in six groups under the headings of,—1. Engineering and Local Hygiene. 2. Architecture. 3. Furnishing. 4. Clothing. 5. Food. 6. Preservation and Relief. To these must be added a library, which is, perhaps, the most important department of the museum.

The committee gratefully acknowledge the encouragement and support which they have received. . . . .

The committee deem it right to mention specially the very valuable assistance which they have received from Mr. Thomas Twining, of Twickenham. That gentleman has been indefatigable in his efforts for the good of the Museum. To his generosity is mainly due the collection of food articles.

Since its first appointment there have been several changes in the executive committee. Mr. Erichsen has been succeeded in the post of treasurer by Mr. Berkeley Hill, and Professor Russell Reynolds, on his resignation of the chair of medicine in this college, was succeeded by the present professor, Dr. Ringer. As originally constituted, the committee was composed entirely of members of the teaching staff of this college, for the Museum had its origin in a desire to perpetuate the memory of, and do honour to, Dr. Parkes in the institution where he was educated, and where he helped to educate others. Several circumstances have conspired, however, to widen the views of the committee, and their aim now is not to provide a museum which shall be of use merely to the students of one educational establishment, but rather to found a great central institution for the instruction of the public, where not only professional men, but owners of property, employers of labour, manufacturers, artisans, and other persons, both men and women, may study at their leisure the subjects in which they are most interested. For the furtherance of this object the original committee was enlarged by the election of members having no official connexion with this College; and it is gratifying to be able to state that Mr. George Godwin, F.R.S., Mr. Rogers Field, Mr. Netten Radcliffe, and Dr. Steele, of Guy's Hospital, have become the colleagues of the original members.*

At the beginning of the present year, Mr. Mark H. Judge was appointed curator, and his zeal and energy have already proved of great service to the institution.

It is shortly intended to institute for the benefit of artisans practically engaged in sanitary work a series of demonstrations of the uses of hygienic apparatus, under the direction of Professor W. Corfield.

The financial condition of the museum is scarcely satisfactory. Up to the present time the subscriptions amount, in round numbers, to 1,100*l.* The committee has always felt that, if the museum is to be a permanent success, an endowment is absolutely necessary for the payment of a curator, and to meet the necessary annual expenditure. Even in its present position, without any expenditure for rent, rates, or taxes, it is estimated that at least 200*l.* a year will be necessary to render the museum thoroughly efficient; for a museum not properly cared for and properly replenished must soon degenerate into something little better than a lumber-room. With a view to the formation of that endowment fund which is felt to be so necessary, the committee have invested in the names of trustees 600*l.* of the funds subscribed.

Mr. Cross then addressed the meeting. In the course of his remarks he said:—I am here to-day to testify, as far as I can, my hearty agreement with all the objects you have in view. First of all, I agree with the great object you have in testifying to the important benefits which were undoubtedly conferred on his fellow-countrymen by the gentleman whose name this museum bears. It is unnecessary for me to enlarge on the useful and extended sphere of his life, or to allude to the self-sacrifice, which was his standing habit and practice, for his fellow-creatures, but it is sufficient to know that the memorial which has been erected to him under your careful charge is the one memorial which he would have liked. It is a source of gratification that her Majesty the Queen should have testified, in the way she has done, her appreciation of the mode in which you hope to contribute to the health, comfort, and well-being of her subjects. This museum is an institution of infantile growth; but considering the short time the matter has been in hand, it has grown rapidly, and is likely to grow much more. I do not rely so much on the term "hygiene" which you have used, but I prefer the old-fashioned word "health," and when I say health I mean it in its widest sense, which includes social, moral, and physical health. We all have at heart the social, moral, and physical welfare of our fellow-creatures, and we all know that the actual state of health contributes much towards the moral and social well-being of the people. We are in the habit of hearing and saying very hard words about the drunkenness and vice which prevail amongst the poorer classes. I always hear that sort of language with regret, because allowance is not made for the want of education or the physical suffering and degradation of those people. With regard to physical health, you have a large field for your operations, and you want, as far as you can, to bring to bear upon the subject the great scientific knowledge many of you possess. What, as I understand it, you want to do is to get all the scientific knowledge on the matter applied to practical life, for we know that a great amount of the misery and the disease which exists is preventible. One of the objects, then, of this museum is to hunt down disease,—to drive it into a corner and stamp it out. The causes of many diseases are preventible when taken in time, and what you practically want to do is to restore the actual birthright of every citizen,—pure light, pure air, and pure water. If those objects are carried out you will, I am sure, come to the conclusion that the actual physical health of the people will be improved. The difficulties you will have to contend against are carelessness, indifference, ignorance, and selfishness. You will have to rebuke carelessness, to awaken the indifferent, to enlighten the ignorant, and to stamp out that selfishness which is so hurtful. I have stated the objects of this museum, and it is from the beginning to the end of this question that you want reform. It is wanted in the arrangements of the house by the architect and engineer, for in our present system of drainage there is often created the greatest evil. You want reform also in clothing, and in the manner of preparing food, and attention to things which are apparently small will create the greatest amount of domestic happiness. There is no matter so small as not to receive attention at this museum, and which will not have the fullest weight given to it that it deserves. There are thousands of people who live in crowded places,—such places which few of you in this room would venture to go into, and if obliged to live in them for a week would hardly be alive. I now declare this museum open.

The Duke of Northumberland moved the following resolution:—

"That the Parkes Museum, as fulfilling an educational want which has been long felt, is well worthy of public support."

His Grace observed that the education of the people was an important factor in the public health, and he was convinced that such education must proceed from above downwards. The most elaborate and complete appliances would be worse than unavailing where the people were too ignorant to appreciate them. He had evidence which justified him in assuming that even surveyors and inspectors of nuisances in small urban and rural districts were often lamentably ignorant of the most rudimentary laws of sanitation.

Mr. Godwin, in seconding the motion, said that the inauguration of the museum and the growth of public opinion generally in favour of sanitary measures afforded great gratification to those who, like his esteemed friend Mr. Chadwick and others, many years ago undertook to endeavour to lead public opinion into the course in which it was now beginning to run. Sanitary reformers were not now scoffed at as they were many years ago when he (the speaker) first entered upon the task of doing what he could to improve the sanitary condition of the people. In those days men of education were to be found who would say that it was ridiculous,—some, even, that it was "flying in the face of Providence," to attempt to save life by any alterations in the condition of the homes of the people or in their manner of living,—that no such means would tend to lengthen life. Such persons were not aware then that persons living, say, at Eastbourne would have double the chance of life that they would have if living in Salford. Nothing disheartened, however, by the scoffs with which they were met, the small band of men who at that time represented the cause of sanitary reform worked on, gradually making their way, accumulating influence, and gaining new adherents, until now the value of sanitary measures was beginning to be recognised. The Act which had been passed by the distinguished chairman of that meeting, although it had been a long time creeping into operation, from a variety of circumstances which were to be regretted, would, nevertheless, in the long run tend greatly to improve the condition of the labouring classes. But much as had been done in the direction of improving the dwellings of the people, it was but as a drop in the ocean. Overcrowding to a frightful extent still continued. He had lately seen a room inhabited by four families, each family occupying one corner, while a bachelor rented the centre of the room,—a room not calculated to give healthy habitation to more than two people, yet on the night he saw it there were seventeen persons sleeping in it! As the resolution said, the Parkes Museum of Hygiene was an institution deserving the support of the public, and he, as one of the committee, cordially invited the aid of manufacturers, inventors, and patentees of sanitary and hygienic appliances in making the museum as complete and representative as possible. He hoped that some day the Government would feel it to be their duty to provide a suitable place for the housing of the museum, and to arrange for lectures calculated to promote the health and prosperity of the people. He looked for the day when the troubles of war would have ceased, and when statesmen would find it to be their highest duty and their greatest joy to endeavour to aid by home measures in promoting the happiness of the people.

The resolution was unanimously adopted.

Viscount Cranbrook moved the next resolution:—

"That the best thanks of this meeting be accorded to the president and council of University College for the assistance they have rendered in the development of the Parkes Museum, and for the loan of the Lecture Theatre for the present occasion."

After dwelling on the necessity of beginning the work of sanitary education with the higher classes, he urged the promoters of the museum not to rely upon Government aid, but to continue their work in the self-helpful spirit in which they had begun it.

Cardinal Manning, in seconding the resolution, quoted from statements made by Mr. Edwin Chadwick, C.B., with reference to the health of the army, to show what influence proper sanitary conditions had in diminishing the death-rate. It appeared that in 1858 the death-rate in the army was 27 per 1,000, but the sanitary improvements effected during the last seventeen or eighteen years had reduced the death-rate to 9 per 1,000. In like manner, the death-rate in the Indian army had been reduced from 60 to 27 per 1,000.

The resolution was carried, and Mr. E. Enfield replied on behalf of the College.

Professor Hill, having read a list of subscriptions,

Sir Wm. Jenner, in moving a vote of thanks to the Home Secretary for presiding, attributed the dreadful condition in which he found many houses of wealthy people either to the owners' want of faith in sanitary science or to the ignorance of those who were employed to carry out sanitary works.

Professor Huxley seconded the motion, which was carried.

SOCIETY FOR THE PROTECTION OF ANCIENT BUILDINGS.

THE second annual meeting of this society was held on Saturday afternoon last at Willis's Rooms, the Hon. Percy Wyndham, M.P., in the chair.

The Chairman, in opening the proceedings, announced that the secretary had received letters from Sir John Lubbock, Sir Charles Dilke, and Mr. Lecky, stating their concurrence in the objects of the Society; also from Mr. Samuel Huggins, one of the original promoters of the objects of the Society at Liverpool, who said he trusted that the Society might be successful in their attempt to save the churches of the City of London from destruction. Continuing his remarks, the Chairman said the Society had now been in existence rather more than two years, and they were now beginning to see what their aim ought to be in order to give effect to the object they had in view, viz., the preservation of the ancient buildings of this country. That aim ought to be no lower than that of, altering the whole standpoint from which the public viewed the question of restoration, so that, instead of, as at present, the burden of proof resting with those who would defend an old building from restoration, it should rather lie with those who would interfere with

* The original committee consisted of the following:—Sir William Jenner, bart., K.C.B., F.R.S., chairman; Dr. Corfield, Professor of Hygiene; J. E. Erichsen, esq., F.R.S., Professor of Clinical Surgery, treasurer; A. B. W. Kennedy, esq., C.E., Professor of Engineering; Hayter Lewis, esq., F.S.A., Professor of Architecture; John Marshall, esq., F.R.S., Professor of Surgery; Dr. Russell Reynolds, F.R.S., Professor of Medicine; Dr. Williamson, F.R.S., Professor of Chemistry; and Dr. W. R. Gowers and Dr. G. V. Poore, honorary secretaries.

it. The Society was perfectly aware that restoration must take place, but they contended that where a building happened to contain work of different periods it was going beyond restoration to level up or level down those portions of it which did not happen to be of the particular period which most commended itself to the predilections of the architect engaged.

Mr. William Morris, the hon. secretary, then read the annual report, which contained the following passages:—

"In putting forth their second annual report, the Committee feel that while they have undoubtedly to congratulate the Society on the progress made by its principles, the nature of their work is little altered from what it was last year.

It must be remembered that as so much of that work is of a negative character, is preventive rather than creative, it is not easy to show the obvious signs of success that attend some undertakings; while, on the other hand, the Committee are apt to see most of the discouraging side of the matter, because the greater part of their work consists in protesting and advising in cases in which there is not much hope of direct success, since such schemes have already gone far before the Society can know of them. Nevertheless, these protests cannot be regarded as useless; in most cases there are some people concerned who are anxious for such support as the Society can give them, and even in the worst, their earnest appeal to care and patience will often save something of value, and prevent the most sweeping changes; in the mean time, even unsuccessful protests are sure to breed doubt in some minds that have not hitherto thought of the subject, and to make those already inclined to treat ancient buildings with reverence more disposed to thorough care and forbearance in their practical dealings with them.

Taking these things into consideration, therefore, the Society has, on the whole, no cause to be disappointed with the results of its work since its foundation. It is certain that the general tone of the public is decidedly more favourable to its principles than when it was first started.

To come to details of the work done during the past year: it was discovered that the business of the Society was so very onerous for the one general committee that had been formed, that it became absolutely necessary to form sub-committees to carry on the work of the Society. A Restoration Committee was formed, which has had before it, and has sifted the cases submitted to the Society throughout a great portion of the year.

A committee, to take notice of the condition of ancient buildings abroad, called the Foreign Committee, has also been constituted, in accordance with a hope expressed in last year's report, and has begun its work by putting itself into communication with archæological societies in France, Germany, Italy, Belgium, Holland, &c. Inquiries have been set on foot respecting the state of ancient buildings in India, as also in Spain, where restoration is commencing. The prospectus of the Society has been translated into French, German, Italian, and Dutch, and steps have been taken to obtain corresponding members in each of these countries. The committee do not conceal from themselves the difficulties in their way in dealing with the state of buildings in foreign countries; nor is it easy to overrate the necessity for caution in such dealings, but it is hoped that the efforts of the Society to prevent the falsification of monuments, and the ruin of works of art, may attract attention abroad, and be commented upon in the public prints, and that its principles may be spread thereby.

Arrangements have been made for appointing local honorary correspondents in various parts of the country, for the purpose of obtaining quick and accurate information of the threatened restoration or demolition of any ancient building. There are now twenty-two correspondents spread over eighteen counties, and it is hoped that before long their number will be considerably increased.

Amongst the objects the committee have taken in hand is the preservation of the City churches, and in this respect they are able, to a certain extent, to report favourably. Although St. Dionis Backchurch has been demolished, the interesting church of St. Mary-at-Hill, Eastcheap, has, in spite of strenuous opposition, been saved. In this case much help was afforded by the 'City Church and Churchyard Society.' Owing however, to the Union of Benefices Act, the City churches are being continually threatened, and very great vigilance has to be exercised to secure early information of any proposed demolition, and to prevent a surprise. The committee cannot help calling attention once more to the loss that Londoners, and the country at large, would incur by the demolition of these interesting and handsome buildings, which are such a rest, both for the eye and the mind, amidst the hurry of business London."

Mr. Leonard Courtney, M.P., in moving the adoption of the report, said it referred to good work done, and indicated a great deal of bad work prevented. If the Society was not always successful in preventing mischief being done in one parish, the stir it made and the remonstrances it put forth against restoration probably in many cases had the effect of preventing mischief in adjoining parishes. It was satisfactory to know that the Society was doing its best to avert the destruction of the City churches. Certain people, no doubt actuated by the best of motives, had thought that they could do good service to the Church as a religious organisation by pulling down the disused City churches and selling the sites, and with the proceeds building new churches to meet the wants of the suburbs. He should be sorry indeed if he thought that Churchmen were so poor in spirit that they would desire to build churches with the means which such destruction gave them. If they cared much for the progress of religion, they would build new churches, where required, with their own resources. The churches of the City of London were remarkable as works of art, and formed a group of architectural structures not inferior to any to be found elsewhere in Christian Europe, except perhaps in Rome itself. To destroy Wren's churches was not only to slight our forefathers, but to damage ourselves and our posterity. On the general question, the speaker said that one reason why the Society objected to the work of architectural restorers was that to restore an ancient building or part of a building by exactly copying in modern masonry the details of the old work was to commit what in a picture or document would be a forgery. There was ample room for the Society to exercise its influence abroad. In France, "restoration" had been carried out to a greater extent and in a worse fashion than in England. In Spain, the work of destruction was just beginning. In the case of those countries the Society would not be able to exert very directly its influence, but in the case of India it was to be hoped that it would be able to prevent the further spoliation by the Public Works Department of those wonderful works of art, the buildings of the Mogul kings. At Agra and Delhi, the Department had been set to workings and had succeeded in completely ossifying and debasing some of the Moslem buildings of those cities.

Mr. G. Cavendish Bentinck, M.P., seconded the adoption of the report, and said that the best way of making the Society successful would be found in each member practising what he preached, and being true to himself. He was afraid that many eminent gentlemen, although avowedly in favour of the objects of the Society (even though they might not be members of it), often had opportunities of doing good of which they did not or would not avail themselves. It was all very well for Mr. Street and Mr. Blomfield to protest against restoration in the case of St. Alban's Abbey, but what did they do when they were themselves called upon to do something of the kind that was being done at St. Alban's? He had just come from the Guards' Chapel at the Wellington Barracks, a very respectable building in its way, of Classic architecture. The inside of the building had now been made to assume the appearance of a Byzantine or bastard Lombard interior. A similar thing had been done at St. Peter's, Eaton-square, a church built by the late Sir Robert Smirke. Many of the members of the Society were members of the Royal Institute of British Architects. He himself was an associate member of the Institute, and he must say that he did not think that it had stood by the principles of the Society as it ought to have done. The Institute was very fond of calling meetings to discuss the subject, but there it stopped.

The motion for the adoption of the report having been put from the chair, it was carried unanimously.

Professor Bryce moved the following resolution:—

"That this meeting, recognising the value of ancient buildings to the student of history, whether general or local, deprecates all alterations in, and restorations of, such buildings which may obliterate their historical character and features."

He observed that of all the arts and sciences which were the handmaids of history,—and in a certain sense history might be said to include and sum up all human arts and sciences,—there was none whose connexion with history was so close as the art and science of architecture. There was no kind of historical evidence so important and so valuable as that afforded by ancient buildings, and therefore he endorsed the remark made by Mr. Courtney that a great deal of so-called architectural restoration was the equivalent in stone of a forged document.

Mr. William Morris, the honorary secretary, seconded the motion, which was unanimously agreed to.

Earl Cowper moved the next resolution, as follows:—

"That the work which the Society has carried out during the past year has been both important and useful, and that in the opinion of this meeting the Society is deserving of continued and energetic support."

In the course of his speech, he observed that it was perfectly abominable that, even in the case of our largest and oldest monuments, a small committee, appointed nobody exactly knew how, should arrogate to themselves the power of doing everything they liked,—pulling down, mutilating, modernising, and restoring. As a Hertfordshire man, he regretted having subscribed to the restoration of St. Alban's Cathedral.

The Rev. Stopford Brooke seconded the resolution, which was carried.

Mr. J. L. Ffytche, F.S.A., in proposing a vote of thanks to the chairman, told the following curious story:—"Walking one fine summer's morning in June down to the Mansion House, on reaching the Poultry I was surprised to see a man on the top of the tower of St. Mildred's Church, hammering away at the stones with a crowbar; so, finding the door open, I went up the stairs of the tower, and said to my friend of the crowbar, 'Why, you are pulling the church down!' 'Ay,' says he; 'it's all to be down and carted away by the end of July.' 'I suppose it's going to be rebuilt elsewhere?' '*Built* anywhere?' No; my master has *bought* it.' 'Who is your master?' 'Don't you know him? Mr. So-and-so, the great contractor.' 'What's he going to do with it?' 'Do with it? Why, he's twenty carts and forty horses to lead it away to his stone-yard, and he's going to grind it up, to make Portland cement!' So I asked him of the crowbar to show me round the church. 'Would your master sell the stones instead of grinding 'em up?' I asked. 'Sell 'em? Yes, he'll sell his soul for money!' So I made an appointment for him to come up to the Langham Hotel next morning, and we agreed about the purchase,—he to deliver the stones at a wharf on the Thames, and they were brought down in barges, and landed at the head of a canal on the east coast of Lincolnshire, and are now lying in a green field near my house, called St. Katherine's Garth, from an old Priory of St. Katherine, which formerly stood there, and which I hope some day to rebuild as a domestic chapel."

THE CITY OF LONDON SCHOOL.

IN the account we gave last week of the competition for this building it is stated that on the 4th of June the School Committee reported to the Court of Common Council that they had selected three designs, which they placed in a certain order. This, we are informed, is inaccurate, as the Committee did not report, but only resolved to report, on that date, and on the 18th ult. they met again to consider and sign their report, when they varied the resolution they had arrived at by placing the design "Simplicity" in the third place, and "Playgrounds" in the second place.

The position of the selected designs is, therefore, as follows:—

1. "Live and Learn,"—Messrs. Davis & Emanuel.
2. "Playgrounds,"—Mr. T. E. Knightley.
3. "Simplicity,"—Mr. T. C. Clarke.

It is possible that an anonymous circular addressed to the Common Council, pointing out certain alleged defects in the planning of the first selected design, and urging that "the elements of decision on the plans should rest on the points of which designer has supplied the largest cubical space of air per boy in the class-rooms, whilst securing the smallest cubical area in the whole building," has had something to do with the alteration in the order of the award of the School Committee.

It will be seen by our advertising columns that an influential committee of the competing architects in this case has been formed, in order to ask the Court of Common Council to publicly exhibit the designs before making their award. Competitors are invited to attend a meeting which is to be held at the Cannon-street Hotel on Tuesday next, the 8th inst., at three p.m.

[Since the foregoing was in type we learn that the Committee have determined upon publicly exhibiting the drawings, as will be seen by another advertisement.]

COMPETITION FOR THE CITY OF LONDON SCHOOLS.

WITH this heading the following printed document has been circulated amongst members of the Court of Common Council, no signature, address, nor date being appended:—"The selection of the best design for the above buildings so far transcends in importance the subordinate question of who may be the author of any special design, both as to the future welfare of the schools and also to the Corporation (considering that the building will last for generations), that the following remarks on the three designs now before the Council are submitted for your judicious consideration. The Common Council will do well not to allow themselves to be hurried to a decision on so large and weighty a matter, however much it may be desired by those now placed first in the competition. There are certain grounds of judgment which should certainly

guide the Council, influencing their selection, and deciding the order of the three designs, and it is for the members of the Corporation to ascertain how far the plan selected as first can justly be held worthy of that position. It may be well to ask if the Corporation, in giving so magnificent a site for the new schools, meant to sacrifice the buildings for a playground, or whether the intention was to have the best class-rooms conveniently arranged, and a playground as large as the site will admit of, as specified by the conditions. One of the leading ideas in any design should be that of keeping the boys entirely distinct, in the working of the schools, from the administrative part of the building. In the design selected for the first place, the boys, in going to the dining-hall, must traverse a long and dark corridor, passing by the whole of the administrative department. A vital point is to arrange the class-rooms and corridors so that the boys, in going to and from their class-rooms need not necessarily meet; and this they must inevitably do in the design selected as the first, as there is but one passage or corridor on each floor of the building, with eight class-rooms debouching thereon, and with someaddi-tional class-rooms even on the second floor. By placing the greater number of class-rooms on the western side of the buildings they are exposed, not only to the noise of a future street, but to the heat and glare of a western sun, whereas if some class-rooms had been planned with a northern and eastern aspect those defects would have been avoided. A great defect of the first design is that in order to provide play-grounds under the ground-floor, the main floor of the building has been thrown up, thereby creating great additional expense in its erection with no adequate object, and in addition an immense gymnasium, about 90 ft. by 50 ft. and 24 ft. high, running from the basement right through the height of the ground floor, has been placed immediately in the rear of the administrative block, and opposite and nearly close to the main entrance, taking away the light and air of the building in one of its most important parts, and rendering the corridor before referred to (which must be largely used) dark and ill-ventilated. A very important point in a building of this character is to place the latrines near but apart from the buildings. In the design selected as the first some are placed in the basement, surely a most undesirable plan, and the others are placed at the extreme north end of the site, not easily available without consider-able exposure. The great principle should be to provide large airy class-rooms with double lighting and natural ventilation, and in any plan selected the head-master should have easy supervision on two floors of class-rooms, with perfect power of classification for junior and senior departments if desired; the great hall, lecture-rooms, and chemistry department, common to the whole school, being placed apart, but in a central position to each series of class-rooms, and approachable from different sides of the building. The elements of decision on the plans, it is submitted, must rest on the points of which designer has supplied the largest cubical space of air per boy in the class-rooms, whilst securing the smallest cubical area in the whole building, without neglecting the other require-ments of the design. Whichever of the three designs meets in the closest way the above points, at the same time giving a building which, by its collegiate character, may endear it to the pupils in after-life (when possibly some go on to the universities), and be worthy of the great Corporation of the City of London, ought, it is respectfully submitted, to be placed first in the competition."

DROITWICH NEW WATERWORKS.

DROITWICH, famous for its saline springs, has at length obtained an abundant supply of pure water for sanitary purposes. For years the borough has suffered indirectly from that to which the town owes its existence,—the im-mense saline beds beneath it, which rendered all private wells brackish, and placed almost insuperable difficulties in the way of obtaining a public supply for the town, suitable for domestic purposes. Years ago Mr. Swinburne was consulted, but no satisfactory source of supply could be discovered, and the matter remained in abeyance until attention was specially directed to the subject, some two or three years ago, by the medical officer of health, Dr. Horace Swete, who also found many of the wells contaminated with sewage matter. Mr. E. Pritchard, C.E., of Westminster and War-wick, was called in, and in conjunction with Dr. Swete, after inspecting the district, fixed upon Tagwell Spring, a small outcrop at the north-western side of Newland-common, as most likely to afford the desired supply if water in sufficient quantity could be found. Examina-tion showed there was here an extensive gathering-ground, including the Smite-hills, to Hindlip, where Mr. Allsop has since tapped water obtained from the same glacial drift of the New Red Sandstone, and is supplying it for domestic purposes to Hendlip Hall.

These facts having been ascertained, steps were taken to gauge the outcrop at Tagwells, and the rainfall. The former was found to be little affected by sudden heavy rainfalls, whilst yielding from 25,000 to 60,000 gallons in the 24 hours; and the rainfall varied from 25 in. to 27 in. per annum, representing 101 tons of water per acre. The engineer began by driving three adits into the drift,—one along each side of the Tagwell slope, and the third into the hill itself. Into these adits perforated pipes were put, and these convey the water to the pumping station at Tagwells. The yield is ascertained to be 123,000 gallons per day, and as 60,000 gallons will provide 15 gallons per head for the existing population, the supply is adequate for all pur-poses, present and prospective.

At Tagwells, a pair of compact horizontal engines, driving direct-acting equilibrium pumps, have been erected by Messrs. James Taylor & Co., of Birkenhead. Each engine and pump, with 40 lb. of steam, will lift 10,000 gal-lons per hour to the reservoir, 100 ft. above the highest level of the town, and capacious enough to hold three days' supply. The service pipes are fitted with expansion joints, to guard against injury from subsidence of the ground, common in all salt-yielding districts; and altogether some four or five miles of mains have been laid throughout the borough. The contract for all the work, except the engines, was executed by Mr. Law, of Kidderminster.

The works were publicly opened on the 27th ult., by the mayor, Mr. Holyoake, in the presence of several members of the Town Council, the ex-mayor, Mr. Bradley, the town clerk, the borough engineer, and several influential resi-dents. Mr. Pritchard, the engineer, first gave a description of the works, and then Dr. Swete read an analysis of the water, giving the follow-ing results per gallon:—Chlorine, 2·5; total solids, 41·0; and free ammonia, 0·2. The cost of the works has been 9,000*l.*, including 2,500*l.* paid for about half an acre of land for the pumping-station and reservoir, and for driving the adits into the hill; and it is computed that, excluding all water required for public and sanitary purposes, the revenue at 1s. per 1,000 gallons will far exceed the annual cost of the works, including repayment of principal, interest, and a fair allowance for depreciation.

The Mayor, at the opening ceremony, alluded to the great importance of a good water supply to a community, adverted to the inconvenience Droitwich had experienced in the past from not possessing any public waterworks, and ex-pressed an opinion that those they were that day inaugurating, which he characterised as a triumph of geological research and of mechanical engineering, would prove a permanent benefit to the town, and conduce largely to the future progress and development of the town.

The engines and pumps having been started, the mayor, corporation, and visitors inspected the various portions of the works.

PARTS OF THE SOCIETY OF ARTS' REPORT.

THE Report from the Council read at the annual general meeting of the Society of Arts on the 25th of June showed that the affairs of the Society were in a very satisfactory con-dition. The following extracts will interest many of our readers:—

Artisan Reporters.

"It was announced in the report of the council presented to the Society last year, that H.R.H. the President of the Society had pro-posed to the council that arrangements should be made to procure a series of reports by repre-sentative artisans on the Exhibition then being held in Paris, in the same way as had been done by the Society in 1867. At the time when the last year's report was issued the movement had been but recently begun; during the summer of 1878 it was carried to a successful issue.

As stated in last year's report, a joint com-mittee was formed of members of the Royal Commission and of the Society of Arts. This committee held many meetings, and under its directions arrangements were made for select-ing a number of men, sending them to Paris, and receiving them there. The committee also collected funds for the purpose of defraying the expenses of this movement. The result of the arrangement was, that 204 artisans were sent over to Paris, most of whom have sent in reports; 57 of these men were sent at the expense of the fund; the charges of the other 147 were defrayed, some by provincial towns, others by various societies, others through their employers; whilst a few paid their own expenses.

In the arrangements made for the reporters, the committee were greatly assisted by the London, Chatham, and Dover, and the South-Eastern Railway Companies, who undertook to carry the men to Paris and back at a reduced rate. The London, Brighton, and South Coast Railway Company also made similar arrange-ments, and conveyed some of the later parties. The arrangements in Paris for the reception of the men were made under the special direc-tions of Sir Philip Cunliffe Owen; two houses were engaged near the Exhibition for their benefit, and some rooms were also set aside for the purpose in one of the houses used by the staff of the Royal Commission. The men were admitted free to the Exhibition, and were given every facility for the successful accomplishment of their task. They were also introduced to many of the best workshops and manufactories within reach of Paris. In all cases, it is plea-sant to be able to say that the reporters ex-pressed themselves well satisfied with the arrangements made for their reception.

In all, 168 reports were received: some of these have already been printed by the towns who subscribed to send out the men; and five reports, made by the reporters of the Coach-makers' Company, have been printed in a very handsome form by a late Master of the Com-pany, Mr. C. Sanderson. The other reports were carefully considered by the committee, and it was eventually decided to make a selec-tion from them, and publish the selected reports in classes, as well as in a single volume. In this undertaking the committee have been greatly helped by the liberality of Messrs. Eyre & Spottiswoode, who have undertaken to print the reports at cost price; and of Messrs. Sampson Low, Marston, Searle, and Rivington, who have undertaken, on being paid a certain sum towards the cost of printing, to publish the reports at their own risk. The reports are now passing through the press, and will appear almost immediately; most of them, indeed, are printed, and are only waiting for their final corrections."

Owen Jones Prizes.

"The first award of the Prizes established by the Owen Jones Memorial Committee has been made during the present year. That Committee presented to the Society the sum of 400*l.*, the balance of subscriptions to the Owen Jones Memorial Fund, on the condition that the inte-rest of this money should be expended in prizes to students of the Schools of Art who should produce the best designs for household furniture, &c., on the principles laid down by Owen Jones. The examiners reported that the following students had sent into the annual competition of the Science and Art Department works of sufficient merit to deserve a prize:—John M. Carr, school of art, Nottingham, design for a lace curtain; Frank Baker, school of art, Not-tingham, design for a lace curtain; Harry H. Hitching, school of art, Nottingham, design for a wall paper; Arthur J. Sewell, school of art, Nottingham, design for silk tapestry; Isabella C. Bergin, metropolitan school of art, Dublin, design for muslin; and I. S. Ingall, school of art, Barnsley, design for modelling rosettes and ornamental borders.

The prizes consisted in each case of a well-bound copy of Owen Jones's "Principles of Design," and a Bronze Medal. For this purpose, a special edition of "The Principles of Design" was prepared, and the council have to tender their thanks to the Institute of British Archi-tects for permission to re-publish this work, which was originally a communication made by Owen Jones to the Institute. The republication was under the charge of Mr. Alan S. Cole, to whom also the thanks of the council are due for the trouble he took in the matter."

Silversmiths' Work.

"At the beginning of the last session a very liberal offer was made by Mr. E. J. Watherston, in the hope of improving the present style of workmanship in the precious metals in this country. Mr. Watherston placed at the disposal of the Society a sum of 100*l.*, to be offered as a prize for the best essay on the art of the silversmith. The proposal, as was announced in last year's report, was accepted by the council, and the Society's medal added to the prize offered by Mr. Watherston. A committee was appointed, which drew up a set of conditions for the guidance of competitors. A circular, embodying these conditions, was accordingly published in December, 1877, and nearly a year later, in October, 1878, the date appointed, several essays were received. On one of these, by Mr. Herbert Singer, the committee considered that so much research and labour had been bestowed that they recommended the council to award to it the Society's silver medal and the money prize offered by Mr. Watherston. The council have adopted the recommendation, and made the award accordingly. The essay strongly recommends the abolition of the duty upon gold and silver plate, and, further, that hall-marking should be voluntary, and not a compulsory proceeding. It may be added that the Committee of the House of Commons which, after sitting for two sessions has just reported, recommends that the duty should be abolished as soon as the revenue permits, but approves the retention of the hall-mark. The council have left it to Mr. Singer to publish his essay or not as he thinks fit."

School of Wood-carving.

"A committee of the council, appointed last summer, after having for some time considered how they could best utilise a sum of money offered to them by the Drapers' Company for the promotion of some branch of technical education, determined that this could best be done by founding a school of wood-carving in London, and in accordance with this resolution, the National School of Wood-carving was established in Somerset-street, Oxford-street. It appears to be a fact that this beautiful art, in which our countrymen once excelled, has long been languishing amongst us, and that we are further behind other countries in it than in many other departments of decorative art. Very little good wood-carving is now produced in England, none of the highest quality, and when our architects and decorators require it, they are obliged to send their commissions abroad. Under these circumstances, it certainly appeared to the council that a very promising field was open to the labours of the Society, and a most suitable one. It happened that there was in London at the time an Italian wood-carver, of considerable eminence in the art, Signor Buletti, and the committee recommended that an arrangement should be made with him to conduct a class in wood-carving. The proposal was laid before the committee of the court of the Drapers' Company, and was at once approved by them. A grant of 155*l.* was accordingly made by that committee for the purpose of establishing such a class. It was considered best, for various reasons, that this institution should be on a separate basis, and independent of the Society; and a committee was, therefore, formed to carry on the business of the school, the council undertaking to pay out of the funds given them by the Drapers' Company, the fees for eight students. The committee consisted of Lieut.-Col. Donnelly, Mr. R. W. Edis, F.S.A., Mr. E. J. Poynter, R.A., Mr. W. Donaldson (of Messrs. Gillow's), and the late Mr. Le Neve Foster. To them was afterwards added Mr. W. Chapman, a member of the court of the Drapers' Company, while on the decease of Mr. Foster, his place was taken by the present secretary of the Society. Under their direction premises were engaged in Somerset-street, Oxford-street, and fitted as workshops, Signor Buletti being installed as instructor. Nine free students were nominated (one more than had been originally intended), and a few paying students also presented themselves. The school was opened in January last, and the funds in the care of the Society sufficed to cover the necessary expenses to the present date. The council now consider that the school is so far established, that it can deal direct with its founders, the Drapers' Company, and they have therefore expressed to the Drapers' Committee, their hope that the company will continue their subscription to the school, paying it direct to the School Committee."

National Training School for Music.

"During the year a movement of some importance has been on foot with reference to the amalgamation of the National Training School for Music and the Royal Academy of Music. As yet, however, no definite course has been determined upon, and the council are not in a position to state what the results of the movement will probably be. The Training School itself has been going on satisfactorily and steadily. The funds provided have fully paid the expenses, whilst the scholars appointed have, in nearly every instance, justified their appointment. Since the last report, five new scholarships have been founded, one of them through the agency of this Society."

Universal Catalogue of Printed Books.

"In January, 1878, H.R.H. the President of the Society referred to the Council the subject of the cost of producing a catalogue of all books printed in the United Kingdom up to the year 1600. The proposal had been before his Royal Highness for some little time before, and the reference to the council was merely upon the question of the cost of producing such a work, and was not made with any idea that the Society of Arts should bear the expense of so large an undertaking. In consequence of this communication, a committee was appointed by the council, and a number of questions issued to librarians, publishers, and others, seeking information on the subject; the committee also held several meetings, and took the evidence of persons conversant with the subject, amongst others, that of Mr. Bullen, the keeper of the printed books in the British Museum. The conclusion arrived at by the committee was that, before any such task could be attempted, as the preparation of a general catalogue of English-printed books, though stopped at even so early a date as 1600, it would be desirable to print and publish the catalogue already existing in manuscript in the library of the Museum. The value of this catalogue as it now exists is admitted on all hands. Though it is not, of course, a complete catalogue even of English literature, it is the nearest approach to such a work existing, and it must of necessity form the base for the complete catalogue, whenever it may become practical to produce it. It appeared from the evidence of Mr. Bullen that the Museum catalogue would be ready for printing within two years, and the same gentleman gave it as his opinion that it would take five years to print. It was generally agreed by the witnesses that the printing of the British Museum catalogue would be highly desirable, for its own literary value, apart from its use as a book of reference to the contents of the Museum library, and in this opinion the committee cordially concurred. They accordingly reported in this sense to the President, and on receiving the announcement of his approval, they published their proposals, and issued a circular to printers and others, in order to ascertain definite particulars of the probable cost. The committee had also a specimen page prepared in what would probably be the cheapest possible form. This page was sent round with the circular to a large number of printers, and the committee have now under consideration the replies which many of the printers were good enough to send them. They hope shortly to be able to issue a second report, in which they would state further details of the cost of the undertaking, and what they consider would be the best way of carrying it into effect; in the meantime, they are glad to be able to say that the proposal they have made has met with the unqualified approbation of all the authorities on such questions, and that they have received great encouragement from numerous articles in the public press on the subject. The committee, of course, have no idea that the Society should find funds for printing the catalogue of the Museum, but they hope to be able to lay their proposal before Government in such a form as to induce them to authorise the trustees to undertake this important task."

Memorial Tablets.

"During the year no additional tablets have been set up, but the council have entered into communication with the Corporation of the City of London in the hope that the Corporation would assist the Society so far as regards the erection of memorial tablets within the City itself. They are glad to be able to report that the proposal, after full discussion in the City Lands Committee, was received most favourably, and they have every reason to expect that the Corporation will themselves undertake this portion of the work, thereby relieving the Society of Arts from a considerable part of its self-imposed task in the matter. The council have, of course, undertaken to assist the City committee, and they feel much gratified at the cordial way in which their suggestions were received. When the result is seen of the action taken by the City of London, the council will bring the idea before other large municipalities. By means of these tablets, reminiscences of the most remarkable persons in history will exist throughout the kingdom."

DRYING DAMP BUILDINGS.

IT is sometimes of considerable importance that the drying of a new building should be effected in a brief space of time, and sometimes even more so that the means should be at hand for rendering healthy old constructions impregnated by dampness from the soil. M. Ligny has invented an apparatus for this purpose, which is being used in France, and an agency has been established in England. The apparatus for drying includes an ash-pan; a hearth, with rectangular iron fender, about 0·70m. long, by 0·40m. wide, and 0·40m. high (the hearth is filled with coke and furnished with an iron plate, which serves as reflector); and ten tubes of iron plate, of about 1m. to 1·25m. long, capable of being lengthened at will, which are placed vertically in the fire in such a way that the lower extremities, extended in the shape of a funnel, cover the hearth almost entirely. These tubes are held by iron props fixed to the fender of the hearth, and are bent in any direction that may be required by means of a screw-compass.

When the apparatus is once heated, the cold and damp air passing across the fire is discharged of its dampness and projected very hot against the walls.

A small blower may, in case of need, be attached to one of the tubes in order to convey more hot air to a given point, and also to reach certain parts to which the apparatus could not be brought near. For drying old buildings impregnated with damp from the soil, M. Ligny adapts the following plan:—First, to take off all plaster on the walls which are damp and full of saltpetre of the room which is to be done; then carefully to remove all joints to half the thickness of the walls, which is done bit by bit, to prevent any risk of shaking the walls. Wet the walls thus cleared several times, and each time dry them by means of the apparatus, in order to dissolve all the saltpetre existing in the materials, then cleanse the walls with rough brushes. After this clearing, drying, and cleaning has been carefully done, the brickwork not containing any more dampness or saltpetre, it is again heated, and in every part (by means of a brush) covered with a boiling liquid hydrofuge, which is rapidly absorbed.

THE CREMATORY AT WOKING.

AN association has been formed in this country for promoting cremation, or the burning of the dead, in England, and the preservation of the dry ashes, instead of, as now, committing the entire body to the earth. This association has actually erected a crematory about three-quarters of a mile from Woking, and on the slope of the rise called Knapp's Hill.

The *Morning Advertiser* says:—The mere building of the crematory is about as simple and as practical as can well be. It consists of two small and slightly ornamental massive brick chambers,—one the furnace, the other the crematory chamber. Both the chambers are of nearly the same size, that is about 8 ft. 6 in. long, 4 ft. wide, and 8 ft. 6 in. high. The furnace-chamber, however, is sunk almost at a level with the floor of the crematory, and is thus nearly out of sight, and it communicates with a tall chimney-shaft in its roof 42 ft. high. About a third of the way up this chimney another smaller furnace is fixed inside it, like the draught-furnaces in the upcast shafts of coal-mines. This secures an enormous rush of air through the tall chimney, and a proportionate intensity of combustion in the furnace below all. A sliding door of fire-brick, cased and framed in iron, cuts off all communication between the crematory and the furnace till the latter is in a

proper state of white heat. Supposing, then, a body to come for cremation, the furnace would be with its fuel,—mainly coke,—glowing white. The coffin would then be placed on the grating of the crematory which covers the ashpit below. The air-tight door at the mouth of the crematory would then be closed, and the sliding-door between it and the furnace withdrawn. The moment this is done the draught drives the whole mass of lambent flame and intensely-heated air into the crematory above named and beneath the coffin, which soon gives way to it, and the body is then consumed to calcined bones,—dry and light, very hard, and as white as chalk. But the hot air and flame which come from the furnace can only pass out of the crematory by going down an air-shaft which passes under it and the furnace as well, and so on up the chimney-shaft, where, as we have said, it passes through another furnace as well, whence it issues at the top,—very hot air certainly, but perfectly free from any taint whatever, if we except slight traces of sulphur coming from the coke of the last furnace in the shaft. The whole thing is, in fact, a smoke-consuming, reducing or reverbatory furnace. Judging from the experience of Gotha, Breslau, and Milan, where these crematories have been erected and are in constant use, the time occupied in the complete consumption of an adult body, coffin and all, is about an hour and a half. The door from the furnace is then shut, and that of the crematory opened, and a draught of air driven through the latter enables the white atoms of bones on the grating to be soon collected, when they are given to some representative relative, either to be deposited in an urn in the crypt of a church, or to be kept as feeling may prompt.

GRESTY & MILLS'S APPARATUS FOR CONNECTING TOGETHER FRAMED WOODWORK.

A NEW invention relating to the connecting together of the parts of doors, windows, and other framed woodwork, which dispenses with the mortise and tenon principle, has been patented by the inventors, Messrs. Gresty & Mills, of Regent's-road, Salford, Manchester.

A piece of woodwork, say, for example, a door, is formed of parts which are tongued and grooved as is usual, but are not mortised nor formed with the usual tenons; such parts are put together and placed upon a travelling-table or frame, and are rapidly and thoroughly connected. The apparatus devised to carry out the object of this invention consists of a travelling-table or frame, such apparatus being formed with parts which are arranged to slide towards and from each other, these movements being preferably effected by means of right and left hand screws connected by a cross shaft and gearing. The two movable parts are provided with clamping-pieces, which are fitted in grooves formed in the sides of these parts, or are otherwise arranged to be adjustable. When the two parts of the table approach each other, by turning the said screws the parts of the door become clamped together, so as to tighten up the joints. Other sliding clamps, actuated by right and left hand-screws, are employed to act in directions at right angles to the clamping-pieces. The table carrying the parts of the door thus firmly clamped together is mounted upon a carriage, or upon carriages, which is or are fitted to slide to and fro upon a bed, and is or are actuated by means of revolving screws, which are geared together, and are actuated by means of cross and open straps, or by means of reversible gearing, so that the said carriage or carriages can be caused to slide to and fro upon the bed. The table is arranged to be raised and lowered upon the carriage or carriages by means of cams or eccentrics, or by screws, or racks and pinions, or other suitable means. Two drill-head stocks are formed or fixed upon each end of the said bed, and upon each head-stock are mounted sliding and adjustable carriages, which are formed to receive the spindles of Archimedian boring-bits, or of drills or borers of a suitable form. The said spindles are fitted to revolve in bearings, and are actuated by means of straps, which receive, or may receive, motion from a drum fitted to revolve below the bed, or in a lower room, or above the machine, as preferred, or the borers are otherwise caused to revolve by any other suitable means.

The borers are arranged so that when the door is brought up to the borers of one head-stock by the traversing of the carriage, the said borers simultaneously bore holes through one of the stiles, a suitable number of holes being at the same time bored into the other rails. When the bores have penetrated the required depth, the movement of the carriage is reversed by suitable means. The carriage now moves towards the other head-stock, and the holes are bored through the other stile. The carriage is again reversed, and the table carrying the door is lowered, wooden pins or dowels being placed in or pushed into the holes. The next double traverse of the carriage to and fro causes the door to pass below the bores, and the outer ends of the pins or dowels to come in contact with the parts projecting from the drill head-stocks, the effect being that the said pins or dowels are forced home into the holes which have been bored as aforesaid. It will be understood that glue may be used as usual.

By the apparatus in question, which is easily worked by a man and a boy, a complete panelled door for an ordinary room can be made in from six to eight minutes, and a pair of sashes in a like time.

Messrs. Gresty & Mills have recently conducted some interesting experiments to test the relative breaking-strength of joinery made by machinery under the mortise-and-tenon method as compared with joinery made on Messrs. Gresty's patent dowel system, when upwards of one hundred professional and practical men were in attendance, and such test being under the superintendence of Mr. J. H. Lynde, C.E., together with several professional and practical men. The mortised-and-tenoned articles were of the first quality, having had for their makers the best English and American firms, five of which were English and four American. A tensile strain to pull was applied to the stiles of the doors and sashes, so as to draw the stiles from the rails. Taking the average strength of the nine doors tested, the relative strength of the dowelled doors is 2·2, or 120 per cent. stronger.

The sashes tested in the same way showed a relative strength of 2·72, or 172 per cent. in favour of the dowelled method.

The second series of tests were to prove the relative strength of doors made on the different principles to resist a strain applied diagonally across the doors. Three English and American machine-made doors on the mortise-and-tenon method were found to be 39 per cent. weaker than three made on the dowel system. The great advantage of the dowel system claimed is that, not only are the doors and sashes very much stronger than the ordinary mortise-and-tenon doors, but that their framework can be sold at a price 30 per cent. cheaper.

STONE MONUMENTS IN LEWIS.

IN the year 1868 I walked to Callernish, or Classerniss, from Stornoway, when I inspected the stone relics there. In the "Archæological Journal," 1874, vol. xxxi., p. 76, Mr. H. F. Church described this monument as consisting of two circles of stones of gneiss, not concentric; an avenue; and a cross row of stones running through the circle, not at right angles to the main avenue. In the centre of the smaller circle is a cist which contained charcoal, wood, and bones. It was covered formerly by a flat stone, now displaced, but the walls are *in situ*. The chief stone of this circle is stated to rise more than 17 ft. above ground. Peat had accumulated to the depth of several feet, and when removed, some years since, the original floor of the avenue,—a causeway of flags on the soil,—was disclosed. The plan in this volume by Mr. A. Carrington shows a stone avenue of nineteen stones extant,—ten on the northern side, and nine on the southern side, north-east of the circle, which is composed of thirteen stones, and the rudder stone in the centre. An arm of four stones east of the circle, and one of five stones west of it, are seen in this plan, with seven stones south of the circle. Of these, five are in a line, and two are displaced. A smaller circle is seen within the large one, which is stated to be 36 ft. in diameter. The diameter of the former is not mentioned.

Mr. Church referred to Mr. D. Wilson's "Prehistoric Annals," pp. 115, 116; Waring's "Stone Monuments," plate 48; Stuart's "Sculptured Stones of Scotland"; and "Archæologia Scotica," for information as to Callernish. Mr. Stuart states (vol. ii., p. 25),—"The circle at Callernish is approached by an avenue; that at Shap had a similar arrangement. The structure at New Grange consists of a long passage formed of upright pillars, leading to a circular chamber formed of similar stones, from which three recesses branch off, also formed of pillars. If the cairn were removed, the pillars would form another Callernish." Mr. Waring alludes, p. 97, to the monolith of Clach Stein at Bible, in Lewis, and the Clach an Druidean, or Stone of the Druids, in this isle, 16 ft. high. The "Archæologia Scotica," vol. i., p. 284, contains a description of antiquities in the island, including Classerniss, by Colin McKenzie, who refers to the central stone, surrounded by a trench, where he was informed a stone bowl was found by some explorer.

In the "Celtic Druids" (1829) the author (pp. 54-56) describes the Classerniss relic, quoting the accounts of Dr. Borlase; of Toland, "History of Druids," p. 136; and of Dr. Macculloch, "Western Islands," vol. i., pp. 184, *et seq.*, 8vo. This latter author states the work to have been constructed prior to Christianity. The plan in the "Celtic Druids," being fig. 1, is incorrect, but the figure No. 2 seems more correct. It shows a tall stone at the north-east end, and twenty-nine stones or cavities in the avenue between it and the circle, which here consists of fourteen stones, with one outside and the centre stone. Fifteen other stones are shown, namely, three arms east, west, and south of the circle, each containing five stones. In Fergusson's "Rude Stone Monuments," p. 259, the Callernish group of circles is mentioned as consisting of three or four circles, near to one another, of the ordinary form, 60 ft. to 100 ft. in diameter. The principal relic here, engraved from a plan by Sir H. James, is described as a circle 42 ft. diameter. In the centre is a tall stone, 17 ft. high, which forms the head-stone of a grave of a somewhat cruciform plan; but, in fact, only the tricameral arrangement common in tumuli in Caithness and the north of Scotland. It was apparently covered originally by a little cairn of its own; but this had disappeared, and the tomb was emptied of its contents anterior to the formation of the peat accumulated round the stones, and which was removed by the late Sir J. Matheson when this grave was discovered. From the central stone a double avenue extends 294 ft., and from the same point southward a single row for 114 ft., making the length of the avenue 408 ft., and the two arms, which extend east and west, measure 130 ft. across the whole. This plan shows nineteen stones extant in the north-east avenue, thirteen to form the circle, and one in the centre; with fifteen other stones, four to form each of the arms, and seven south of the circle.

The plan in Martin's "Western Isles of Scotland" is a mere sham as to Classerniss. It shows a cruciform figure composed of an avenue of nineteen triangles or stones on each side, and one at the end, with a circle of twelve stones, and the rudder stone in the centre. Three stones are also shown on the west, east, and south sides of the circle, in a line. Macculloch's visit to Classerniss or Callernish occurred between the years 1811-21; and it is described in his letters to Sir Walter Scott,—"Western Isles," vol. iii., pp. 229, 241. He recognised, erect or recently fallen, forty-eight stones; and originally, he believed, there may have been sixty-five or sixty-six stones. The work is called by the people, "Fidvreachie," and he observed other circles in the vicinity; but his work has no plan. In the 6 in. to a mile Ordnance Map of Lewis, the relic and several other circles are discerned readily. According to Macculloch, the diameter of the Classerniss circle is 63 ft. north to south, and 62 ft. east to west, containing fourteen uprights, and the centre stone, 12 ft. high. The plans of Sir H. James and of Mr. Carrington are reliable, and concur with my personal inspection, A.D. 1868. At a brief distance from the inn near Classerniss, I visited a curious beehive hut, and several stone circles, which appear in the Ordnance Map.

In the "London Archæologia," vol. xxii., p. 429 (May 15, 1828), Mr. A. J. Kemp, F.S.A., describing the stone avenues extant upon Dartmoor, observed,—"The eastern termination of the southern double line of stones is formed by a single flat stone, placed perpendicularly on end, and standing at right angles with the line: this is precisely the mode in which a double line of stones appears to be terminated in a Druidical temple described by Borlase as extant at Classerniss, in the Isle of Lewis, the character and arrangement of which it might be well to compare with these remains." This reference is to Borlase's "Cornwall," p. 190,

A.D. 1754, where this relic is stated to consist of an avenue, with nineteen stones on the sides, and one at the north end, which leads to a circle of twelve stones, with one in the centre, from the circumference of which circle, and in a line with the centre, runs a line of four stones, north, west, and south of this circle. Mr. Martin, in his "History of the Hebrides," states that he was informed by a native that this was a place appointed for worship in the time of Druidism, and that the chief Druid stood near the big stone in the centre, whence he harangued the people who listened to his oratory.

Dr. Borlase observed it was curious that the number of stones in the avenue was thirty-nine, and in the circle thirteen, and the detached stones, east, west, and south, twelve, and he added, "whether these numbers happened to be so complete by accident or whether (as I rather imagine) they were intended to express the number of weeks and months in one year, I submit to the learned."

Mr. Carte, in his "English History," vol. i., p. 55, suggested that there may be something emblematical in the number of stones, nineteen, on each side of the avenue, and which fact he referred to the great year, or cycle of nineteen years, and the twelve pillars comprising the circle he deemed to be an emblem of the Zodiac.

These stones are described briefly by the Rev. John Cameron, in the "Statistical Account of Scotland," A.D. 1845, vol. xiv., as "the entire remains of a Druidical place of worship. They all stand on end at the distance of five and six yards from each other."

Carte, in his "History of England," vol. i., pp. 55-6, A.D. 1747, described this relic as the winged temple of Apollo, consi-ting of a circle of twelve high stones, 7 ft. high, 2 ft. broad, and 6 ft. distant from each other, with one in the centre, 13 ft. high, and shaped like the rudder of a ship. He refers to its four wings, to represent the four principal winds; and the stones in the avenue 8 ft. wide, nineteen in number, this author deemed to represent the cycle of nineteen years. He refers to another temple at a quarter of a mile's distance from this one, probably dedicated to the moon, "agreeable to the practice of Delos, where the temples of Apollo and Delos were not far asunder."

Mr. H. F. Church observed, "Archæological Journal," vol. xxxi., p. 76, that "not far from Callernish are smaller circles, which probably were in connexion with it. They present no features of an uncommon character." It is to be regretted that Sir Walter Scott did not visit Classerniss during his voyage in 1814. Crossing from Cape Wrath to Skye, his ship touched at Rowdill, in the south-east part of Lewis, and Sir Walter in his diary has described the church which he visited, with its monuments.

Stornoway is now accessible from Skye by steamer. See Murray's Handbook for Scotland, pp. 360-1, where reference is made to cairns, pillars, and forts at Carloway and elsewhere in Lewis. That at Bragar, of unhewn stone, is three stories high, with a double wall, bound by flags, which forms a winding staircase round the building. In the *Builder*, vol. xxxiii., number 1690, I described the relic at New Grange in Ireland. C. C.

THE IMPERIAL HOTEL IN THE AUCTION MART.

THE palatial building on the Holborn Viaduct, at the corner of the Old Bailey, known as the Imperial Hotel, and recently erected at a cost, it is stated, of between 50,000*l.* and 60,000*l.*, was offered for public sale last week at the Auction Mart, by Messrs. Fox & Bousfield, by direction of the mortgagee, and from the observations made by Mr. Bousfield, the auctioneer, in introducing the property, there appears some reason for believing that the hotel may ultimately be converted to other than its present purposes. In his opening remarks Mr. Bousfield stated that the hotel contained fifty-six bedrooms; and that, by an arrangement which had been entered into, the purchaser would have the right of taking the furniture in the hotel at the sum of 8,000*l.*, which was not half the amount which the furniture cost only a year or two ago. He added that although the ground-rent payable to the Crown,—2,500*l.* a year,—might appear to be large, it must be remembered that the hotel was in one of the best situations in the metropolis, being almost midway between the City and the West End, and there was every reason to believe that the rack-rents of the ten shops under the hotel would ultimately cover the ground-rent. He invited biddings by a commencement at 40,000*l.* or 50,000*l.*, but no offer being made the property was withdrawn, the auctioneer stating that it was open for sale by private contract.

ENLARGEMENT OF THE NORTH LONDON CONSUMPTION HOSPITAL.

THE North London Hospital for Consumption, situated at Mount Vernon, Hampstead, is about to be considerably enlarged, and in aid of the cost a bazaar was held in the grounds last week. It appears that this hospital admits patients from all parts of the United Kingdom, and more than 80 000 persons have received its benefits. It is stated that the accommodation afforded by the present hospital is so much sought after that there are always more patients waiting on the list than would fill the present building, and in consequence an enlargement has been determined upon, which is to be carried out on a site immediately adjoining the existing structure, and within the grounds, at an estimated cost of 25,000*l.* The designs for the new building have been prepared by Mr. Roger Smith, architect. The intention of the committee is to first build a block, with every modern appliance, for the accommodation of 110 patients, and then to further enlarge as opportunity may offer. Certain of the wards are to be set apart for patients able to contribute towards the cost of their own maintenance, and one lady has contributed 350 guineas for the continued support of one patient in a "memorial" bed, in remembrance of her late father.

THE ARCHITECTURAL ASSOCIATION'S EXCURSION.

OUR readers may have already learnt that the Architectural Association intend, on the present occasion, to visit the neighbourhood of Wells.

Mr. James Fowler, of Louth, has consented to conduct the visits, and Mr. E. B. Ferrey has promised to act as guide at the cathedral. The excursion will take place in August, commencing on Monday, the 11th, and ending Saturday, the 16th.

Here is the sketch programme:—Monday,—The Cathedral, Bishop's Palace, &c., Wells. Tuesday,—Crosscombe, Shepton-Mallet, Doulting, West Cranmore, Nunney, and Mells. Wednesday, — Priddy, Cheddar, Axbridge, Rodney-stoke, Westbury, and Wookey. Thursday, — Pylle, Ditcheat, Castle-Cary, Wyke-Champflower, Bruton, Evercreech, and Dinder. Friday,—Pilton, West Pennard, and Glastonbury; and Saturday,—St. Cuthbert's Church, Wells; the Deanery, and Vicar's Close.

NEW THEATRE, GLASGOW.

WITH reference to the notice of the New Theatre, Glasgow, which appeared in our issue of the 31st of May, we are requested to state that, besides the theatre, large shops and warehouses are in course of erection for the Central Halls Company (Limited), from the designs of Mr. James Thomson, of Glasgow, the whole of the works being executed under his superintendence.

The space reserved for the theatre (about one-third) was at first designed to contain large halls and committee-rooms, but when the directors of the company resolved to have a theatre, Mr. Frank Matcham, having had experience in such structures, was engaged to prepare designs, and to be the consulting architect for this portion of the building.

London and Middlesex Archæological Society.—The members of this society were to meet on Thursday, July 3rd, at the Church of St. Saviour, Southwark, to hear the following papers:—"On the Architectural History of the Priory Church," by Mr. Francis T. Dollman; "On the History of London Bridge prior to the Thirteenth Century," by Mr. Alfred White, F.S.A.; and "The Brandons and their Palace in Southwark, and on other Notabilities connected therewith," by Mr. W. Rendle. They were then to cross London Bridge to the Church of St. Mary-at-Hill, Billingsgate.

LONDON BRIDGE.

SIR,—Now that a committee has been appointed to take evidence as to the alterations to be made in London Bridge, for the furtherance of traffic, suggestions will, of course, abound. In Ray's Proverbs there is one to the effect that "Wise men go over London Bridge and fools go under it"; yet there is one course so very simple that in all proposals for alteration it is probable that the wise men who go over London Bridge will not hit upon it; you may, therefore, think it worth while to propose it.

The overhanging pathways will be an absolute disfigurement, as well as a most unprofessional and unarchitectural expedient. Rennie's bridge has always been admired and talked of as if it were one of the wonders of the world; and certainly it ought to have been, for it cost nearly two millions of money. Thornbury, in "Old and New London," unaccountably puts it at 500,000*l.* only. To disfigure it would be a folly; to pull it down and build another would be wasteful; and to build another bridge lower down, say on the other side of the Tower, would disfigure the river, which would be worse than to disfigure the present bridge, and would impede the traffic and injure the quay accommodation, already much impaired by the Embankment. Old London Bridge lasted from 1176 to 1831,—655 years. It would be truly absurd if the new one should only last fifty years. What, then, is the obvious course to pursue?

Manifestly, it is best, simplest, and easiest, as well as cheapest, to double the width of the present structure, by carrying out the sterlings and piers to the eastward. If they were carried 100 ft. in that direction it would bring them exactly to the site of the western side of the old bridge, and so increase the historical identity. It would again throw open to view the beautiful church of St. Magnus and the Monument, and would form such a place, or piazza if you like that better, at the confluence of Cannon-street, King William-street, Gracechurch-street, and Eastcheap, as would pretty well secure it on the Middlesex side from any glut of traffic for the future.

In doing this, the present roadway need not be stopped for a day. The new piers run out, being once ready, the arches could be thrown across them, and the stone facings and balustrade of the eastern side of the present bridge could be again used to face the eastern side of the widened bridge. The river views and the beauty of the bridge would remain intact, and the land approaches would be simply magnificent, really as grandiose as anything of the kind in Europe. C. A. WARD.

THE EMPTINESS OF PICTURE GALLERIES.

"THE population of Great Britain consists of some thirty millions, mostly fools;" so wrote one of that number, and in all probability he spoke the truth, for England is a country which has required some extraordinary geniuses to save it from perdition. How then, sir, can you reasonably expect our art-exhibitions to be exhibitions of intellect? Exhibitions, art-exhibitions, are merely responses to the *thirty millions'* taste. Painters do not paint pictures in order to martyrise themselves, but to live. If, therefore, the public desire evidences of the paint-pot and the paint-brush upon canvas rather than of mind, your complaint of the emptiness of picture exhibitions will have again and again to be repeated. It is the press and the public who are to blame, not the artists. If art-ignorance be elevated to the bench and hold the scales of criticism, what can you expect?

With all our art-gibberish and art-appliances, we are not one whit better in taste than in those days when Canova, being solicited to make a statue for a wealthy Englishman, replied, "Why do you not commission your great compatriot, Flaxman? You English see with your ears instead of your eyes." In no other country in the world have art-impostors so good a time of it as in England. A few writers have only to be won over to their cause, and the success of their nostrums is assured.

Look at the catalogues through the year, how inane in subject,—what a narrow verge of selection! And if, perchance, one does happen to light upon a subject indicating selection by a thinker, you may be tolerably well assured that the picture was not on the line. Think over the names of those artists who have exhibited, really exhibited, evidences of great intellect, and then

inquire what encouragement they received, what was their fate? No, sir, your art-critics and your public, with all their gabble about the history of art, and their outcry for fresh art-educational appliances, have yet to learn that it is the evidence of intellectual superiority which has endowed the greatest works with immortality. It is the degree in which the intellectual element manifests itself in works of art which gives them rank and precedence. Why, Raffaelle and Michelangelo never could paint,—as painting is understood in the paint-pot sense,—half so well as dozens of young "brushers" in the present day, whose works will go into famous collections and never be heard of more in the tide of time, except, perhaps, now and again at Christie's. What is the use of all the caw-me, caw-thee, adulation of which we have so much? Is art life worth living if we are to be for ever behind the past in achievement?

METER.

COMPETITION: WESLEYAN CHAPEL, MATLOCK BANK.

SIR,—Many of your readers doubtless joined in this competition, and will like to know more of the circumstances of the case. There were eighty-five sets of designs received, and the number of meetings held to consider them was not twenty, nor fifteen, nor ten, nor five, nor even two! One meeting only, held in an afternoon, somewhat lengthened into the evening, was all the time given to the difficult task of inspecting and understanding the merits of eighty-five sets of drawings, with an unusually large complement of perspectives, sections, &c. When I say that the accepted architect is *a son of a member of the committee*, there will, I think, appear the explanation. It looks like a sham competition, and the competing architects would do well to make a charge for their trouble, for certainly there was not the ghost of a chance given to them.

DERBYSHIRE PEAK.

ARTISANS' AND LABOURERS' DWELLINGS.

SIR,—In your columns of last week a statement was published relative to the cost to the ratepayers of putting into operation the provisions of the Artisans' and Labourers' Dwellings Act, and from the facts and figures given, it would appear that many persons are under the impression that unless the ground set apart for industrial dwellings is leased or sold at a sum far below its commercial value, such dwellings cannot be erected in anything like sufficient numbers. This view of the matter is only to a certain extent correct. There can be no doubt that the allotment of land for working-class dwellings in our main thoroughfares is a gross mistake, as the land in such situations is required for commercial purposes, and is necessarily of considerable value. Plots in other positions would be more suitable for many reasons, and they could be obtained at one-fourth the value. When new streets are formed, the ground might be taken at a greater depth, and the houses provided before the main thoroughfares are arranged. If this were done the Metropolitan Board of Works would make a better investment for the public, even if the ground in the rear were let at only one-fifth the amount of that in front. But, after all, the ground-rent is a mere trifle, as the following figures will prove. Suppose we take a plot of land, having a frontage of 100 ft. and a depth of 40 ft. This at a ground-rent of 6d. per foot would be 100*l*. Now, on such a plot a building six stories high could be erected, having twenty rooms on each floor, and whether the Metropolitan Board reduced or raised the ground-rent by one-half, viz. 50*l*., the difference in rent on each of the 120 rooms would be under 2d. per week; therefore it is obvious that the ground-rent is not the chief obstacle to the leasing of the land. The fact is, most of our blocks of artisans' dwellings are too expensively built, and too much space is wasted in needless brick walls, passages, staircases, &c.; hence, as a commercial speculation, they can only with difficulty be made to pay a fair return on the capital expended. Then, again, the homes that have been provided up to the present time are not such as meet the requirements of the working-classes, particularly as to bed accommodation; and the rent in most cases is far too high, ranging as it does from 6s. to 14s. per week,—prices much beyond what the ordinary working-man can afford to pay. I think the Metropolitan Board or other parties who have ground to let for artisans' dwellings ought to be in possession of carefully-conceived plans, showing the accommodation to be provided and the modes of construction. I may state that this subject has occupied my attention for the last twenty years; and having designed and erected more industrial dwellings than perhaps any other builder in London, I do not speak without knowledge of the whole matter. The result of my experience and close observation is, that with well-arranged plans, in which due care is taken to economise space and material, homes can be provided for the working-classes which would give all needful and decent accommodation, and realise a far better return on capital than can be obtained from most other building operations.

MATTHEW ALLEN.

MORE LONDON BOARD SCHOOLS.

NOTWITHSTANDING that the London School Board has resolved itself into a committee with a view to a reduction of the outlay in the erection of new schools, the Board have invited, and have just received, tenders for the erection of five more schools in different parts of the metropolis, the aggregate minimum cost of which will not be less than about 47,000*l*., that being the amount of the united lowest tenders. The different schools proposed to be erected include one in Cranbrook-road, the lowest tender for which is 14,243*l*.; another in Duncombe-road, Upper Holloway, at a cost of 12,516*l*.; also one in Wenlock-road, Hackney, cost 9,424*l*.; one in Tothill's-road cost 8,271*l*; and another in Glengall-road, cost 1,989*l*.

THE LIGHTING OF WATERLOO ROAD.

THE Lambeth Vestry have entered into an arrangement with the Phœnix Gas Company for the retention of the large lamps, giving a more brilliant and much improved light, which the company erected some months ago in Waterloo-road for experimental purposes. At the last meeting of the Vestry, the Lighting Committee recommended that the lamps in question be retained to the following extent:—Lamps at forty yards apart, and on alternate sides of the way, from Waterloo Bridge to the junction of Stamford-street and York-road; and from that point to the railway station that the lamps be retained at the corners of Ann-street, Agnes-street, Frances-street, and Cross-street; also three others on the east side, between Church-street and Stamford-street; also, two under the railway bridge. The committee considered that these, with the two triple Argand lamps, would be sufficient to secure a much better lighting of the road than before the Phœnix Company made their experiments. It was stated that the proposed improved lighting of the road would come to about 60*l*. a year more. Some opposition was manifested to the recommendation, Mr. Fenton stating that he should strenuously oppose an additional expenditure of 60*l*. a year in the Waterloo-road, to the prejudice of other streets in the parish, but the recommendation was adopted.

LINE OF FRONTAGE UNDER METROPOLITAN MANAGEMENT ACT.

DR. JOHN MAY ANDREWS, of 81, Queen's-crescent, Haverstock-hill, was summoned to the Marylebone Police-court by the St. Pancras Vestry for erecting beyond the general line of buildings in St. John's-gardens, Queen's-crescent, without the consent in writing of the Metropolitan Board of Works, a certain erection, contrary to the statute.

Mr. Ricketts prosecuted for the Vestry, and Mr. Louis Lewis defended.

A building originally stood on the spot, but the defendant increased it to such a size that an inhabitant complained, and the Vestry warned the defendant that he must apply to the Metropolitan Board for permission to erect the building. This he did, and the application was refused, the building being beyond the line of frontage. Notwithstanding this, however, the defendant completed the building.

The defence was that the building did not go beyond the site of the old one, and that it was not in St. John's-gardens, but in an approach-road to it.

Mr. De Rutzen (the magistrate), who had visited the spot, held that the defendant had built beyond the line of frontage without consent, and that he must pull the building down.

On the application of Mr. Lewis the summons was formally adjourned for a month for time to consider whether he would take a case.

WHAT IS A STREET?

ON Saturday last in the Queen's Bench Division of the High Court of Justice (in Banco), before the Lord Chief Justice and Mr. Justice Lush, came on the arguments in a "case" stated by Mr. Woolrych, the magistrate at Westminster Police Court, upon the application of the Vestry of Chelsea, who had been dissatisfied with the decision of the said magistrate in a summons heard and determined by him in June, 1878. It was a summons taken out by Charles Lahee, the Vestry-clerk of St. Luke's, Chelsea, against one Stoddart, a job-master, &c., of the Pavilion-road, Sloane-street, Chelsea, for causing certain carriages to stand on the public carriageway in that road, and not removing them when called upon by the foreman of the roads of the Vestry. The summons was issued under the 73rd section of the Metropolis Local Management Amendment Act, 1862, which extends some of the powers of Michael Angelo Taylor's Act, commonly called the Paving Acts (Local).

The contention before the magistrate was whether this was a "street" within the meaning of the 18 & 19 Vic., cap. 20, and if so whether any dedication to the parish and public interfered with or qualified the right of the defendant to place carriages on the carriage-way. It was put forward in evidence on behalf of the Vestry that they had paved a greater portion of the road, and that when the traffic in Sloane-street was diverted for repairs, &c., Pavilion-road was used for traffic. On the part of the defendant, however, it was shown that the place had been used as a "mews" from time immemorial, and that the owners of the stables had the right of opening and keeping open the stable or coachhouse doors, which opened outwards to the extent of about 6 ft.; that there were dung-pits above the ground, 3 ft. or 4 ft. high and 6 ft. by 4 ft., and also sunken pits with flaps; and that when part of the road had been taken up and repaved by the parish, some of the stable-owners objected to this action of the Vestry; that only part of the paving alleged to have been put down by the Vestry had been so done, the rest being the work of the occupiers; that for over twenty years they had exercised the right of placing their carriages there, and washing them, and that a few years ago the late Mr. Arnold had decided against the Vestry on a similar summons, and that the same state of things existed then as now. (Mr. Pemberton, solicitor to the Vestry: No; we have paved it since.) Mr. Woolrych having viewed the *locus in quo*, as had Mr. Arnold, gave judgment against the Vestry on the same grounds as that magistrate, but, on the application of the Vestry, granted a "case" for the Queen's Bench Division; the delay in taking it up is not explained.

Mr. Benjamin, Q.C. (instructed by Messrs. Lee & Pemberton, solicitors to the Vestry of Chelsea), was for the appellant; and Mr. Herschell, Q.C., with whom was Mr. Safford (instructed by Messrs. Doveton, Smyth, & Bristow), for the respondent.

The case stated for the opinion of the Court, after reciting the sections of 57th Geo. III. (the Paving Acts, Local), proceeded to comment on the 73rd section of the Metropolis Management Amendment Act, 1862 (25 & 26 Vic., cap. 102), which suppressed certain nuisances existing under the Act of Geo. III., and section 65 of the old Act was that under which the Vestry proceeded. Having recited the section (which is well known to be very long) the "case" proceeds:—

"Section 93 of the Metropolis Local Management Act, 18 & 19 Vic., cap. 120, confers upon the Vestry the powers and duties of surveyors of highways; by section 250 of the same Act a 'street' is defined; and by section 112 of the Amended Act (25 & 26 Vic., cap. 102) the word 'street' is intended to apply to and include any mews or any part thereof. Pavilion-road was formerly known as the New-road, and runs from north to south, parallel to and in the rear of the west side of Sloane-street, about 1,000 yards in length, and average width about 30 ft. It is and has been used for many years principally as a mews, is a public thoroughfare, and partially paved by the parish; on the west side is a flagged footway for passenger-traffic, and the houses on that side are of the ordinary character. There is a channel or gutter in the middle of the road. On the east side there is no flagged footway for passengers, except opposite a few houses at the north end; but the roadway is paved right up to the buildings. Throughout

the greater part of the frontage on the east side stables or coach-houses abut on to the street, the gates opening outwardly into Pavilion-road about 6 ft., and the occupiers have, from time immemorial, claimed the right to open and keep open the said gates. Some of the stables have raised dung-pits and others sunken ones. Some of these pits had been in existence long before the Vestry was formed, some had been formed with the sanction of the Vestry."

Having recited at length the evidence given and arguments adduced before him, Mr. Woolrych proceeded in the "case" to say:—

"I was of opioion that the place where the carriage stood was a portion of a street within the 18 & 19 Vic. and 25 & 26 Vic. (already mentioned); but I was of opinion that the original dedication of the street in front of those premises was for purposes connected with stabling and the business of job-masters. It was contended on the part of the Vestry that there was no sufficient evidence that the original dedication to the public was so qualified; and, secondly, that even if the occupier of the respondent's premises had originally the right which was claimed, it did not prevent the Vestry from exercising, with regard to that portion of the street, the powers vested in them by 25 & 26 Vic., cap. 102, sec. 73, and by the Paving Acts.

I dismissed the complaint on the grounds:—

1. That there was no evidence on which I could properly find that the original dedication of the road to the public was subject to the right claimed by the respondent.

2. That if the original dedication was so qualified, the rights subsequently given to the Vestry by 57 Geo. 3 and 25 & 26 Vic., were subject to the above-mentioned right of the occupiers of respondent's premises.

The questions for the opinion of the Court, therefore, are:—

1. Whether there was evidence upon which I could properly decide that the Pavilion-road was dedicated to the public, subject to the right of the occupier of the respondent's premises to place carriages upon the portion of the street in front of those premises, and to allow them to remain there.

2. Whether, even if the original dedication of the street was qualified by such a right on the part of the occupiers of the respondent's premises, as is mentioned above, the Vestry can exercise the powers given them by the Paving Acts and Metropolis Local Amended Act, with regard to the portion of the street in front of the said premises, so as to curtail that right in cases where, in their judgment, inconvenience was caused to passengers by the exercise of that right."

Mr. Benjamin, in a lengthy address, contended that this being a public street the owners of the houses could have no such right as that claimed by them as against the rights of the public. He cited many authorities in support of his view, among others the statute known as the Hans Town Act, which referred to Sloane-street and "other streets being formed," and he contended that the Pavilion-road was one of those streets then in course of formation, and no more right could be claimed to do this sort of thing there than in Sloane-street itself.

Mr. Herschell, on the other hand, was following the line of argument taken at the police-court, when

The Lord Chief Justice stopped him, and said the Court was unanimously of opinion that judgment must be for the respondent (Mr. Stoddart). Following the principle laid down by Mr. Woolrych, he was of opinion that this was a "street," but dedicated only in part to the public. The dedication to the public was only conditional, and subject to rights, privileges, and immunities, enjoyed for a great number of years by those who had used the place as a means to put out their carriages to wash them, or keep them out for necessary purposes: the proceeding seemed a somewhat vexatious one on the part of the Vestry, and if allowed to be held good, there would not be a mews left in the metropolis, nor could they be used for the legitimate purpose for which they were intended.

Mr. Justice Lush concurred.

Appeal dismissed with costs.

BUILDING ACT PROVISIONS.

PARGETING FLUES.—JENNINGS *v.* DUNCAN.

THIS was a case, in the Exchequer Division, stated on appeal, by Mr. Cooke, one of the metropolitan magistrates, who declined to order the respondent to "render" or "parget" the flue of a chimney in the new Mission Hall, York-court, South-street, Marylebone. The appellant, who is a district surveyor, contends that, not only must the inside of the flue be lined with fireproof piping, or "rendered," but also that the exterior surface towards the room must be "pargeted," under the Metropolitan Buildings Act, 18 and 19 Vic., cap. 122, sec. 20, sub-sec. 4, the point turning on the words "inside and back or outside."

Mr. Masterman (for the appellant) submitted that this Act was meant to protect the metropo is from fire, and wherever the flames could come there ought to be a layer of this "pargeting," which is a composition of cow-dung and mortar. The magistrate seemed to think that it was enough if precaution was taken not to set a neighbour's house on fire, but that a person was at liberty to set fire to his own if he liked.

Mr. Crisp e (for the respondent) urged that his client had sufficiently complied with the provisions of the Act, and was not compelled to place this unsightly plaster in zigzags up the line of the flue, destroying what was already finished with ornamental bricks.

The Lord Chief Baron said that it seemed to him that the respondent had done all the Act required him to do by lining the inside of the flue with "pargeting." He should, therefore, not be called on to do anything more. The Act only spoke of "back or outside," not "backs or outer sides."

Mr. Justice Stephen was of the same opinion. He would add that this demand seemed made through a desire to keep on foot the provisions of repealed statutes, because they were supposed to afford greater security against fire. Some violence was therefore sought to be done to the provisions of this Act. The earlier Acts, 14 George III. and 7 and 8 Vic., cap. 84, had imposed more stringent obligations on the builders of houses in the matter of "pargeting"; but this Act seemed a good deal narrower, and these obligations were diminished. Whether this was wise or not was quite another question. Appeal dismissed with costs.

Perfectly astounding! The Act says, "The inside of every Flue *and* the Back or Outside, unless forming Part of the Outer Face of an External Wall, must be rendered, pargeted, or lined with Fireproof Piping"; that is, the outside of a flue, when it is in an apartment or in two apartments, for the matter of that, is to be pargeted, as well as the inside; but where the outside of a flue forms part of the outer face of an external wall, as is often the case, it need not be pargeted. How the Lord Chief Baron can justify his assertion that the respondent had done all the Act required of him by pargeting the inside of the flue, when the Act distinctly says that he must parget the outside also, unless it is next the external air, we cannot conceive. A flue has but one outside, although in some cases, as, for example, where a square flue is built up singly in the midst of an apartment, it may have four outer faces, and that outside is to be pargeted, says the Act, excepting any part of it which is so placed as to form part of the outer face of an external wall,—a very necessary requirement, and perfectly understandable as expressed, except under the guidance of judges and magistrates who know nothing about building.

ACTION AS TO BUILDERS' QUANTITIES.

A CASE was tried at the Stourbridge County Court, before Mr. Rupert Kettle and a jury, in which the plaintiff, Mr. D. Hawkins, a quantity surveyor, sued Mr. C. A. Horton, contractor, of Brierley-hill, for 28*l.*, for "taking out quantities." The action has already been tried by his Honour, and a decision given in plaintiff's favour, and a trial before a jury was then applied for by the defendant.

Mr. Stokes (Dudley) appeared for plaintiff, Mr. Hugo Young and Mr. J. S. Smith (instructed by Messrs. Homfray and Holberton) for the defendant, and Mr. Collis watched the case on behalf Mr. Smalman Smith, architect. The case excited great interest in the building trade, and it occupied the Court several hours.

Mr. Stokes, in opening the case, said that plaintiff was a quantity surveyor at Cheltenham, and he took out quantities for some work which defendant did for Mr. F. Evers, Mr. Smalman Smith being the architect. It was the custom for the quantity surveyor to be paid by the successful contractor, and in this case defendant was quite willing to pay the money, but Mr. Smalman Smith claimed half. That he could make the subject of another action, but his client, he contended, was entitled to the money from the present defendant.

From the evidence in the case it appeared the plaintiff was engaged by the School Board and Burial Board at Stourbridge as clerk of the works for them, and he was allowed by them to do other work. Mr. Smalman Smith was the architect in both these cases. Plaintiff stated that he took out the builder's quantities in the case immediately before the Court, and in other cases, on his own account, and he claimed the usual commission of two per cent. Mr. Smalman Smith, on the other hand, said that he arranged with plaintiff to take out quantities for himself, and that he agreed to give him one per cent. for doing so, and that plaintiff was, so far as this work went, in the position of a clerk to him. There was the strongest possible conflict of evidence between the plaintiff and Mr. Sma'man Smith on the point. One of the questions on which stress was laid as against the plaintiff's claim was that he had not endorsed the quantities he took out in the case before the Court. It was stated that where a quantity surveyor took out quantities on his own account, he endorsed them, and made himself personally responsible for them; and that, on the other hand, if there was no quantity surveyor's name on the quantities, the architect mentioned would be responsible. Plaintiff's name was not on the quantities in this case, but he said that he was well known as the quantity surveyor, and that he went into the quantities with defendant, and induced him to reduce his first tender 50*l.* He a'so said his name was originally on the quantities in other cases in which he got out the quantities for work where Mr. Smith was concerned as architect.

Counsel for the defendant severely cross-examined plaintiff as to his name being originally on the quantities when sent out; and a letter was put into his hands in his own handwriting, in which he asked a builder to give him what Mr. Hugo Young called a false document to support his case. Mr. Young made some exceedingly severe criticisms on plaintiff's conduct and motives, and Mr. Stokes replied, after which his Honour summed up in plaintiff's favour.

The jury could not agree upon their verdict, and they asked if the verdict of the majority could be accepted?

Mr. Stokes said he was willing, but defendant's counsel declined. At last, it being after nine o'clock, Mr. J. S. Smith said, not to prolong the case, he would take the verdict of the majority.

The jury were then summoned into the court again, and declared that four of them were for the defendant and one for the plaintiff. There was some surprise at this announcement, it being supposed that the views of the jury were just the contrary.

RIGHT TO LEVY FOR "SQUARE RATE."

AN action of replevin of a peculiar character, arising out of a dispute between a landlord and his tenants, came before the Judge of the Lambeth County Court last week, in which Mr. Davis, of Brunswick-square, Camberwell, sued Mr. Richard May, of Dulwich, for an illegal distraint, arising out of the following circumstances. The piece of land known as Brunswick-square is some acres in extent, and has for some years past been laid out as an ornamental garden, of which the tenants of the houses surrounding have the use by the payment of two guineas per annum. Until the spring of last year the garden was maintained in a neat condition by the landlord, who paid a gardener for the purpose. Last spring the ground-rents were sold, the defendant, Mr. May, being the purchaser. Immediately after the purchase he discharged the gardener, and since that time he has taken no steps whatever to maintain the garden, the consequence being that the grass is rank and overgrown, the paths unrolled and full of weeds, and the place is now altogether a wilderness rather than a garden. Under these circumstances several of the tenants have objected to pay the rate, on the ground that the defendant has not carried out his part of the contract by maintaining the land as a garden. To enforce his claim, the defendant levied upon the plaintiff's furniture, and the present action was brought to show that he had no legal right to do so.

Mr. Baggallay, barrister, appeared for the plaintiff, and Mr. Harmsworth for the defendant. Mr. Baggallay, in arguing upon the illegality of the distraint, said there was no dispute as to the defendant being the landlord, nor that the money was owing, but so far as the defendant was concerned it was owing only under certain circumstances. Counsel submitted the lease in which the agreement as to the payment of the garden fee was set out. He contended that, although the fee was mentioned in the lease as rent, it was practically a separate payment for, and similar to, an annual sum being paid for a right of way, or for the privilege of hanging clothes to dry. He also urged that, assuming his Honour to hold that this fee was rent, the two demises were separate and distinct, and that a levy could not be made upon one demise for non-payment of the second. The reason why the fee had not been paid was that the garden had not been kept up. If a distraint was to be made it should have been made upon anything that was on the ground. The complaint was that the ground had not been kept in an ornamental way, and the tenants naturally objected to pay their two guineas.

The Judge said that was no reason why the money should not be paid. The tenants might as well refuse to pay rent because the landlord did not keep his house in repair. He must hold that this money was rent.

Mr. Baggalay said that even assuming that it was rent, his point was that as there were two separate demises the distraint for the garden could not be levied on the house.

The Judge said that, in his view, the rent was upon the house, and the money paid for the garden a part of that rent.

Mr. Harmsworth said that was so, as there was no option on the part of the tenants. They were obliged to take the house with the garden rate.

Judgment for the defendant.

Brown's Accessible Syphon Trap is made of glazed stoneware, and has a loose lid or cover of the same material forming the upper portion of the trap, this fits into a socket with an inner flange, and should be luted round with tempered clay when in position. If the loose cover is removed, access is at once obtained to the trap and also to the outlet. It has a flat "sole," which affords easy means for fixing to ensure the proper water seal; and some are made with a slanting junction to receive the inlet pipe from the house drain. An upright junction is provided for the purpose of ventilation. It may be usefully adopted.

THE INSTITUTION OF SURVEYORS.

M. LEFÈVRE DE SUCY, president of the Société des Géomètres of France, and of the Provisional International Committee of Surveyors, was entertained at dinner on the 23rd ult. by the President and Council of the Institution of Surveyors in the hall of the Institution, Great George-street, Westminster. The President (Mr. W. Sturge) was supported by the Hon. J. K. Howard, the Hon. C. A. Gore, Mr. G. Ridley, Mr. J. H. Lloyd, Dr. Voelcker, Mr. J. R. Bourne, and other visitors, and by a large representation of the council.

M. Lefèvre, whose health was proposed by the President in very complimentary terms, expressed the pleasure which he felt in accepting the hospitality of his professional brethren in England, and in renewing an acquaintance formed under such agreeable circumstances with the members of the English delegation to the International Congress of Surveyors held in Paris in last July. He concluded by inviting the English members of the International Committee to the meeting to be held in Paris on the 21st of July next, when it is intended to formally constitute the permanent International Committee.

THE ORIGIN OF GAS.

ONE of those remarkable errors which do occasionally happen, even under the best regulations, has occurred in the print of my letter which appeared in the *Builder* of the 21st ult. I shall therefore feel obliged by your allowing me to correct the same, and in doing so simply to observe that the mine was not under Scarborough Spa, and that Wittie's notice is the *first* notice yet found of the discovery of the origin of gas.*

Sherley's description appeared, as I have stated, in No. 26 of the "Philosophical Transactions," dated June 3, 1667. Wittie's description of "Scarborough Spaw" was licensed to be printed January 26, 1666-7, a few months *earlier* than any account yet known to exist.

After describing certain springs, our author says:—"To these Ile adde the mention of one more, as rare as any before cited, lately found out in the parish of Pemberton, three miles from Wigan, in Lancashire, whereof I have most certain information from several persons of quality and undoubted integrity, some of whom *I* procured to view it. If a lighted paper be put to the surface of the water where it is seen to bubble up, it takes fire and flames very fiercely, so as it will sooner boyl a piece of meat being hung over it in a pot of water, than our ordinary fire can; and which is rare also, my friend assures me, that when it had been so flaming a good while, he put his hand into the water under the flame, and he could not discern the water to be heated at all; and it will continue so to flame till it be blown out, which is easily done, even by the waft of an hat. This is thought to proceed from a sulphurous vapour that breathes out there from a mine of cannel coal (as they call it) which is underneath; and was first discovered by a boy who, in the mine below, did let a candle fall into water, where the like bubbling was that took fire."

The whole sentence, as printed by Wittie, but which the printer appears to have curtailed, and thereby altered the sense, is, I think, sufficiently interesting for you to preserve.

T. C. NOBLE.

A STANDARD SCALE.

A MASTERPIECE of mechanical skill, which reflects great credit upon the designer and maker, has just been completed. It is the standard pair of scales for the Bureau International pour les Poids et Mésures at Paris, by means of which it is intended to compare all normal kilogrammes of all countries with the original kilogramme in the possession of the above-mentioned Bureau International, and to determine any possible deviations. The demands made on such an instrument must, on the face of it, be of a very exacting nature, and its production was necessarily much delayed in consequence of no member of the commission being in a position to propose a maker fit for such a delicate piece of workmanship, especially as the problem had to be solved, first of all, how to execute practical weighings in a vacuum. Herr Paul Bunge, of Hamburg, has succeeded in constructing such a piece of mechanism, and after he had made a scale of smaller proportions for the Normal-Eichungs Commission at Berlin, which works to the great satisfaction of the commission, the Bureau International resolved to invite the Hamburg maker to produce a larger one for the use of the Bureau, and to charge Dr. Förster, of Berlin, to enter into a contract with Herr Bunge. The latter has executed the delicate instrument in the comparatively short space of time of eight months, and practical men, besides laymen, are said to admire a work of art which is unique among productions of mechanical skill. This is not the place to enlarge upon the ingenious mechanical contrivances which are here for the first time applied. It will serve, however, as an instance of the delicacy of the whole apparatus when we mention that the person carrying out the weighings must manipulate the scales at a distance of 6 ft., as at a shorter range the heat emitted from the human body would affect the instrument.

* One folio, an intermediate one, of the writer's first letter, appears to have miscarried, and the two which reached us making sense, the omission was not observed.

DISSENTING CHURCH-BUILDING NEWS.

Hounslow.—Memorial stones of a new Wesleyan Chapel were laid on the 26th ult., with accommodation for 615. Mr. James Weir is the architect, and Mr. Hiscock, of Hounslow, the builder.

Barnet. — The memorial-stone of a new Wesleyan Chapel was laid on the 30th ult., with sitting accommodation for 1,004. Mr. James Weir is the architect, and Messrs. Dove, Brothers, are the builders.

Books.

British Mezzotinto Portraits: being a Descriptive Catalogue of these Engravings from the Introduction of the Art to the Early Part of the Present Century; accompanied by Biographical Notes, &c. By JOHN CHALLONER SMITH, B.A., M.R.I.A. London: Henry Sotheran & Co., and J. Noseda. 1878.

THIS is not a book for reading, but a book for collectors, and a very valuable one, which must have involved great labour as well as long acquaintance with the subject. It consists of a list of known portrait works by English mezzotint engravers, giving a brief description of the plate, the name of the subject, and sufficient details in regard to the attitude of the figure, and the accessories and lettering, to render identification easy, information as to the number of states (if more than one) in which the plate is to be met with, and a brief statement as to the date of birth and death, and one or two other particulars in regard to the subject of the portrait. In cases where a copy of the plate is known to be either in the British Museum or in the Sutherland collection, a note to that effect is added for the benefit of readers who may wish to inspect the plate. In the case of portraits of personages of special interest something approaching to a brief biography is given; and a rather longer biographical sketch of each of the engravers included in the book precedes the catalogue of their works.

The works are grouped under engravers' names, which follow alphabetically. The question of this arrangement according to subject is one of some importance, pretty fully discussed in the author's preface. Editors of similar collections or catalogues have in a good many cases grouped the works according to their subject, placing in collocation all the portraits of one particular person. This, in the case of some subjects, results of course in placing together works by different hands and in very different styles. We entirely concur with the author in thinking that the arrangement according to authorship is by far the best; the real interest to the collector or connoisseur is really more in the execution of the engraving than in the history of its subject; and the study of one engraver's works consecutively, as he says, educates the eye as to style and touch more than any other arrangement, and is just as convenient, or more so perhaps, for classification. It must not be supposed that the book contains specimens of the plates, nor, in fact does it tell the reader where to find copies of them except in the cases above mentioned. The use of the book is, that when one has come across or procured a copy of an engraving ascribed to any particular engraver, one can turn to the list under that engraver's name in Mr. Smith's Catalogue, and ascertain the history of the work or its subject, and form some judgment as to its genuine character (if doubtful) by comparison with the description based upon admittedly genuine works.

It was hardly necessary for the author, in order, apparently, to give value to his subject, to disparage historical painting (in his preface) in favour of portraits, and suggest that the former should rather be called fabulous painting. Every one knows what historical painting means, and that it does not pretend to represent the scene precisely as it happened; and every one who cares about or understands paintings or engravings at all is quite sensible of the immense value of good portraits from every point of view, without it being necessary to disparage another and perhaps still more important branch of the art. And it would have been wiser to have omitted the reduced reproductions, by some photographic process, of mezzotints which form the frontispieces to the two volumes: in the process of reduction the texture and quality of the original are almost entirely lost through the blending of the shading on the reduced scale, and the reproductions are by no means calculated to recommend or to illustrate fairly the qualities of the mezzotint manner of engraving. But for the practical objects for which the book has been produced it will be most useful to the section of mankind who collect engravings, a large and, we fancy, increasing section. Some idea of the extent of matter contained in the book may be formed when we mention that it consists of two large volumes, numbering together nearly 1,000 pages. It is plainly and serviceably bound, is printed with good margins and beautiful type, and is altogether an important addition to a reference library.

VARIORUM.

THE rainfall has occupied so much attention lately that the following remarks, from a paper by Dr. Robert Mann in *Science for All*, for July, will be considered pertinent:—"Most rain falls where hilly or elevated coasts are exposed to the inflow of warm ocean winds, at least where prevalent winds drift in from cold, dry regions to low-lying, sunny lands. But over and above this there are circumstances connected with the sculpturing and exposure of the land, which makes the difference very great within very narrow limits of territory. Thus, in Cumberland there are places within two miles of each other at one of which the average annual rainfall is 47 in. more than it is at the other. The annual fall at any one place also differs materially in different years, accordingly as warm and moist, or as cold and dry winds have been predominant. On account of the great diversity which attains in the amount of rain deposited on different parts of the earth, it becomes very difficult to ascertain what the sum total over the whole earth must be. If the amount of water that is thrown up into the air from seas, rivers, moist ground, and living vegetation could be measured, that of course would give a fair estimate of the rainfall of the earth, because it may be safely assumed that all the water which is raised into the air as vapour is ultimately thrown down again to the ground as rain. Commodore Maury, the distinguished meteorologist of the United States, calculated that about 16 ft. of water, assumed to be of the same area as the surface of the earth, is evaporated into the air within a year. More recent authorities consider, however, that this estimate must be largely in excess of the truth, and that if all the rain which falls upon the earth were allowed to accumulate in a basin of the same area as the terrestrial surface, it would amount to a collection of 8 ft. deep at the end of a year. The average rainfall of the British Islands appears to be something like 36 in. in the year; and the average rainfall of London is certainly about 25 in., or a little more than 2 ft. in the year. The annual rainfall in the dryest parts of the British Islands amounts to about 18 in., and in the wettest parts, amongst the mountains of Cumberland, it amounts to 189 in. in the year. The heaviest rainfall known upon the earth occurs upon the mountain slopes beyond the head of the Bay of Bengal, and amounts upon the average to 610 in., or nearly 51 ft. in the year. One inch of rain implies a fall of 101 tons of water upon each acre of ground. The average rainfall of London, therefore, entails a supply of 2,525 tons of water in the year to each acre of ground, or 31,310,000 tons for the entire metropolis, estimating it at an area of 20 square miles."——The Sixth Annual Report of the Nottingham Medical Officer of Health includes a description of the sanitary condition of the new borough, and seems to show that considerable works are needed in that town.——Mr. Dale, in *Sunday at Home*, gives some particulars of Petra, its caves, temples, and tombs:—"The caves are perfectly dry and are deliciously cool. At a distance from the entrance they are dark; but when glass was not in common use for windows most rooms were dark. In the sides of a cave convenient arrangements for household purposes—shelves and the like—are easily excavated. I should hardly care to have a pleasanter room to study in than the cave at

Bethlehem, which is said to have been the home of Jerome. Some of the caves at Petra were also very 'desirable residences'—lofty, cool, fairly lighted, and the 'repairs' were not likely to be costly. The east cliff is excavated into stately temples and tombs. The base of the cliff, to the height of 50 or 60 ft., is left rough; then comes the row of tombs and temples cut in the solid rock; these rise to the height of 50 or 60 ft., and above them there is the rough cliff again. The fancy of the 'architects' had free scope. Bands of colour run along the face of the cliff, and the columns of one building are cut in deep red stone, and the capitals are in a stratum of white and violet. The roof of the great hall is richly decorated by flowing bands of sandstone in various colours. The east cliff is about one-third of a mile in length, and the whole of it is hewn into tombs and temples. The west cliff is occupied with "private houses." The second day we were in the city we explored a most romantic ravine opening on to the western side of the plateau, and filled with glorious oleanders and other shrubs. After a rough walk of about two miles we reached an open platform; on the face of the mountain on our right was a rock temple—the Deir—with a façade 150 ft. in length; the lower columns are 7 ft. in diameter, and about 50 ft. in height. On the opposite side of the plateau rises another cliff containing many excavated chambers. From the summit of this cliff there is a magnificent view of Mount Hor; the Desert lies beyond, and far away in the north-west we could see the southern hills of Judea."

Miscellanea.

The Improvements in St. Paul's Churchyard.—Last week an application was made to Dr. Tristram, the Chancellor of the diocese of London, at the Consistorial Court, held in St. Paul's Cathedral, on the part of the Corporation and the Dean and Chapter of St. Paul's, for a faculty or licence to make a garden with a fountain and other improvements on a part of the churchyard of the cathedral at the north-eastern, south-eastern, and north-western portions, to be open to the public. The Rev. W. H. Milman, rector of St. Faith the Virgin and St. Augustin, joint parishes (St. Gregory's was also mentioned), appeared, but not in opposition. He said he merely objected to the terms of the petition, that the parties therein stated were seised of the freehold. According to the *City Press*, the reverend gentleman explained to the Chancellor the rights of the joint parishes he represented, and said an agreement had been entered into for the improvements specified. Mr. Stainer, from the office of the City Solicitor, said, in answer to the court, that the improvements were to be carried out under an Act of last year. The Chancellor doubted whether he could grant the application to the Corporation without the rector and churchwardens of the parishes interested in the matter were joined in the faculty. It was stated that there would be no objection, as all parties were agreed, and no further alterations were to be made without the consent of the parties. Dr. Tristram, after some further discussion, said the faculty would be granted, and, of course, there would be no removal of human remains, and the improvements would be confined to the specifications mentioned in the plans prepared. With that understanding and the alteration in the petition, it was granted.

Scagliola.—Messrs. Bellman & Ivey have executed for the new house belonging to the Art Union of London, Strand, some Scagliola marble columns and pilasters, which are excellent specimens of this manufacture. Those in the entrance hall are Genoa green, and on the first floor red Devonshire and Brocatella. They present a charming appearance. At Carpenters' Hall, London Wall, porphyry columns in the outer hall, and verde antique columns in the inner hall, with polished Parian capitals, are now being fixed by the same firm. They have also since received the order for the columns in the Livery Hall. These will be of paoneyzetta, 19 ft. 9 in. high by 2 ft. diameter, and will be made in one piece without joint.

St. Paul's Ecclesiological Society.—The members of this society will visit St. Alban's Abbey on this Saturday, July 5th.

Working Men's Club and Institute Union.—The annual meeting of the Working Men's Club and Institute Union was held on Saturday afternoon, in the College Hall, Westminster, Dean Stanley, president of the Union, in the chair. Mr. Hodgson Pratt, chairman of the council, read the annual report, which stated that nineteen new clubs had been opened in London during the past year, raising the number in the metropolis to ninety-two. A house had been taken at Margate, and comfortably furnished for the use of members of clubs and their families. The council regretted that from want of funds they had been obliged to relinquish many useful projects. Mr. S. Morley, M.P., moved the adoption of the report and the re-election of the officers of the Union. Lord F. Hervey, M.P., seconded the resolution, which was agreed to. Lord Reay moved a resolution affirming that working men's clubs and institutes afforded an important agency for raising the tastes, habits, and general culture of the working classes in this country. The resolution was carried. The Duke of Abercorn presented to a delegate from the Putney Working Men's Club a silver cup, offered as a prize in the swimming contest.

The Heating of Schools.—The magistrates of Berlin a short time ago organised a scientific investigation of the arrangements for the heating and ventilation of the schools in that city. Of the 126 schools examined (in 118 buildings) forty-five had local heating with Dutch tile and iron stoves, fifty-four air heating, twenty-two low-pressure water heating, three mean-pressure water heating, one high-pressure water heating, and one air and water heating. The committee thought the following the chief points to be aimed at:—1. The temperature to be kept at a suitable height (19 deg. C. at the most), without the teacher having constantly to look after it. 2. The temperature of each school-room to be capable of regulation independently of all the others. 3. The temperature to show little difference in different parts of the class, horizontally and vertically. 4. The ventilation to be such that the air admitted be free of dust, noxious gases, and infectious matters, that it give no cause for complaint as regards moisture or temperature, and that it be renewed sufficiently to prevent impurities from breathing of the scholars reaching a limit dangerous to health. The committee came to the conclusion that, as regards ventilation and regular distribution of heat in space, the method of central heating, and especially air heating, is vastly superior to local heating, and that most of the complaints against it are groundless.

Sanitary Investigation and Discussion. The Journeymen Plumbers' Benevolent Association of New York, with a wise appreciation of their own needs and of the tendency of the times, have introduced discussions of practical questions relating to their calling at the weekly meetings of their society, and with excellent results. Unusual interest, says the *Plumber*, has been created among the members, the attendance has improved, and a spirit of inquiry and reflection has been developed among the members, which cannot fail to bring about good results. "The search for truth is always commendable, and nothing promotes it more than thorough and impartial discussion. The great scientific bodies of England,—the Royal Society and the British Association,—had their beginnings in a small way, and yet they have grown wonderfully, and proved to be potent factors of national and international progress. We should like to see societies formed in all our great cities, where architects, engineers, plumbers, health officers, and other persons interested in sanitary construction might meet to discuss matters within their province."

The Bristol Builders' Strike.—On Tuesday a number of carpenters and masons arrived in Bristol from the North of England. They were met at the railway station by the president and officers of the Master Builders' Association. In the evening the carpenters of Bristol held a meeting, and, after reviewing the proceedings of the employers, passed the following resolution:—"That we are still of opinion that our wages are as low as we can expect, considering the relative positions of the various branches in the building trade, and that if the employers still adhere to their demands, we, rather than work for what they offer, will use our utmost endeavours to obtain employment for our members elsewhere."

The "Lewis" in Ancient Times.—As to the use of the "Lewis" in very early times, concerning which we have before now given evidence, the Rev. Francis Redford writes,—The "Lewis" was known to the Romans when occupying this country. A few years ago the east abutment of an ancient bridge over the North Tyne, on the line of the Roman wall, was discovered near to Chollerford, and in close proximity to the remains of the large fortified station, Cilurnum; the facing-stones of the abutment, which are large, some nearly 5 ft. long and 18 in. high, were raised and placed *in situ* by aid of the "Lewis"; and it is remarkable, too, that the holes are just about the same size as are usually made in the present day. The stones have been clamped together by long rods of iron, and run in with lead. The work is probably that of the Emperor Severus. Nearly in the centre of the abutment may be seen a remnant of masonry still more ancient, evidently a central pier of a previous bridge, which there is some reason to believe was built by Agricola. The stones are clamped together, but there are no "Lewis" holes.

Industrial Dwellings and the Death-rate.—It is stated, with reference to the Newcastle Improved Industrial Dwellings Company, that during the eight years their block of dwellings has been open, the average death-rate of the dwellings has not exceeded 12 per 1,000, whilst, during the same period, the average death-rate of the town generally had varied from 29 to 22 per 1,000, that of the neighbouring district of Pandon being even much higher.

Carlisle.—The new banking premises in this city for the Clydesdale Banking Company are now completed. The building is designed in the Early Gothic style, and comprises the bank and its accessories on the ground floor and suites of offices above. The builders are Messrs. C. & J. Armstrong, Carlisle; and the architects Messrs. Hetherington & Oliver, of the same city.

A New Convent.—It is proposed to erect a new convent for ten nuns and six novices, and schools for 200 children, at Lixnaw, Co. Kerry, for Dr. M'Carthy, R.C. Bishop of Kerry. Mr. Dominic J. Coakley, architect, has received instructions to prepare plans for the above.

Ipswich Museum Competition.—It is stated that the design marked "Architect" (Mr. Horace Cheston, of Winchester-buildings), will be adopted. "Economy" and "Bona Fides" were very nearly as strongly supported.

TENDERS

For the erection of a new workhouse at Cardiff. Messrs. James, Seward, & Thomas, architects. Quantities supplied:—

White	£31,000	0	0
Jones & Co.	29,250	0	0
Watkins & Jenkins	29,000	0	0
Bird	28,885	0	0
W. & J. Webb	28,830	0	0
Jones Bros.	28,600	0	0
Vernon & Ewens	28,085	0	0
Baker & Sons	28,000	0	0
Veals	27,895	0	0
Forse & Ashley	27,140	0	0
Shipton	26,585	0	0
Drew	26,881	0	0
Howell & Son	25,995	0	0
D. J. & D. Davies	25,790	0	0
Price	25 750	0	0
Thomas	24,998	0	0
Krauss	24,977	0	0
Warburton	24,179	0	0
Burton (accepted)	23,550	0	0

For new premises, Corporation-street, Birmingham, for Mr. J. Jacobs. Mr. W. H. Ward, architect. Quantities supplied by the architect:—

Whittall	£2,630	0	0
Steel	2,600	0	0
Hartley	2,425	0	0
Garlick	2,411	0	0
Surman & Son	2,387	0	0
Robinson	2,374	0	0
Matthews & Son	2,297	0	0
Horsley Bros. (accepted)	2,233	0	0

For pair of villa residences, on the Gurney Estate, for Mr. T. C. Holford. Mr. J. Holden, architect. Quantities supplied by the architect:—

Palmer	£1,425	0	0
Norton	1,377	0	0
Morter	1,297	0	0
North (accepted)	1,278	0	0
Gregan (too late)			

For house and studio, Hampstead-hill-gardens, for Mr. T. Collier. Messrs. Batterbury & Huxley, architects:—

Manley*	£3,290	0	0

* Exclusive of fence walls and fittings.

For detached villa residence, Hampstead-hill-gardens. Messrs. Batterbury & Huxley, architects:—

Manley	£3,000	0	0

For new wing to the Royal Hospital for Incurables, West-hill, Putney. Messrs. Searle, Son, & Hayes, architects. Quantities by Mr. L. C. Riddett :—

Little	£22,399	0	0
Patrick & Sons	22,300	0	0
Conder	21,970	0	0
Holland & Hannen	21,890	0	0
Brass	21,853	0	0
Dove Brs.	21,725	0	0
Rider & Sons	21,692	0	0
Colls & Sons	21,587	0	0
Shaw	21,174	0	0
Higgs & Hill	20,944	0	0
Goodman (accepted)	19,988	0	0

For building five houses and shops, at West Kensington, for Mr. Bryant. Mr. Little, architect. Quantities supplied :—

Nye	£9,000	0	0 !
Clemence	7,800	0	0
Smith	7,748	0	0
Dodds & Co.	7,217	0	0
Pickersgill	6,939	0	0
Green	5,797	0	0 !

For two shops in Great Eastern-road, Stratford, for Mr. J. Hatcher. Mr. J. Hudson, architect. Quantities by Messrs. Franklin & Andrews :—

Little	£1,270	0	0
Morter	1,193	0	0
Mansfield	1,120	0	0
Gentry	1,065	0	0
North Bros.	1,058	0	0
Norton	1,028	0	0

Accepted for new lecture-hall and club premises, &c., in Humberstone-gate, Leicester, for the Leicester Secular Hall Company. Mr. W. Larner Sugden, architect. Quantities supplied by the architect :—

Burdett (Excavator, Bricklayer, &c.)	£829	8	0
Wilson (Carpenter and Joiner)	635	0	0
Austin (Heating)	99	10	0
Lindley (Stonemason)	240	0	0
Hill (Plumber, &c.)	209	10	0

For painting and decorating Wesleyan chapel, Belston-road, Wolverhampton. Mr. Samuel Loxton, architect :—

Tatlow	£388	3	2 !
Lewis	345	0	0
Ash & Newbold	220	0	0
Beebee & Son	190	0	0
Stevenson (accepted)	159	15	0 !

For additions and new shop-fronts to four houses in Ferdinand-street, Kentish-town. Mr. Griggs, architect :—

Larter & Son	£589	0	0
Gould & Brand	485	0	0
Steed Bros.	425	0	0
T. & B. Shepherd	389	15	0

For repairs and painting to Orphan Working School, Haverstock-hill. Mr. Pite, architect :—

Harper	£714	0	0
Staines & Son	528	0	0
Boden	510	0	0

For proposed residence and studio, Boston-road, Brentford, for Mons. A. Bullin. Messrs. Smithies & Gladman, architects :—

Brunsden	£1,375	0	0
Gibson	1,250	0	0
Beauchamp	1,219	0	0

For erection of detached villa residence, Belmont-road, Leatherhead, for Mr. S. Walker. Messrs. Smithies & Gladman, architects :—

Hickenbotham (accepted)	£1,195	0	0

For the erection of a pair of semi-detached villa residences, Belmont-road, Leatherhead, for Mr. Stephen Walker. Messrs. Smithies & Gladman, architects :—

Hickenbotham (accepted)	£1,145	0	0

For part new front and repairs to Founders' Arms, Holland-street, Blackfriars. Mr. W. C. Banks, architect :—

Sharpe & Everard	£291	0	0

For alterations and additions at 8, Marlborough-road. Mr. E. C. Robins, architect :—

S. & G. L. Mann (accepted)	£728	0	0

For making roads and laying drains, gullies, &c., on Estate at Romford, for the Birkbeck Freehold Land Society. Mr. St. John H. Hancock, architect :—

Pound (accepted)	£2,400	0	0

(Granite curbing extra.)

For rebuilding premises, High-street, Notting-hill, for Mr. Rawley. Mr. G. G. Stanham, architect :—

Mears	£1,900	0	0
Adamson	1,889	0	0
Holland	1,870	0	0
Head	1,863	0	0
Hockley	1,830	0	0
Shapley	1,825	0	0
Bowles	1,699	0	0

For building house and shop, 72, Rye-lane, for Mr. Austin. Mr. Lovett, architect. Quantities not supplied :—

Broadman	£911	8	0
Menard	9	9	0
Tyerman	897	10	0
Terry	875	0	0
Linfield	848	0	0
Smith	773	0	0
Buckland	727	0	0

For alterations, &c., at the George, Waterloo-road, for Messrs. Watney & Co. Mr. Bovis, architect :—

Lapthorn	£459	0	0
Taylor	345	0	0
Kenning & Mullens	325	0	0
Hockley	323	0	0
Pinnegar	289	10	0

For alteration and additions to 56, Loudoun-road, St. John's-wood, for Mr. Chaplin. Mr. Bradley, architect :—

Smith	£592	0	0
Drew	574	0	0
Higgs	479	0	0
Landrige	392	0	0
Gould & Brand (accepted)	387	0	0

For house in Manor-road, Barnet, for Mr. W. Justice. Mr. J. Ladds, architect :—

Somerville & Hill	£1,266	0	0
Butler	1,266	0	0
Gould & Brand	1,227	0	0

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PATENT SOLID UNSOLDERED RIDGE PLATES, FOR ITALIAN OR PLAIN ZINC ROOFING.
BY THE ADOPTION OF THIS METHOD THE USE OF SOLDER IS ENTIRELY DISPENSED WITH, AND CONSEQUENTLY THE DANGER INCURRED BY THE USE OF FIRE-POTS IS AVOIDED.
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